

ARIZONA STATE LAND DEPARTMENT

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WATER RESOURCES REPORT NO. 1

PUMPAGE AND GROUND-WATER LEVELS IN ARIZONA

IN 1955

by

P. W. JOHNSON, N. D. WHITE, and J. M. CAHILL

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# PUMPAGE AND GROUND-WATER LEVELS IN ARIZONA IN 1955

By

P. W. Johnson, N. D. White, and J. M. Cahill

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## Abstract

This annual report gives a summary of the pumpage and fluctuations of ground-water levels in Arizona in 1955. The overall purpose of the water-level program in Arizona is reviewed; pumpage and changes in water level are discussed for individual basins and areas. Tabulations of water-level measurements from selected wells are shown. Illustrations include: (1) hydrographs of individual wells in selected areas and cumulative average water-level decline in other areas, (2) graphs showing pumpage of ground water by counties or basins, (3) graphs showing precipitation at selected stations, and (4) maps showing contours of the change in water level for several of the major irrigated areas in the State.

Although the amount of ground water pumped in the State was slightly less in 1955 than in 1954, and precipitation during the growing season was greater than normal, water levels generally continued to decline. However, some rises were evident, particularly along the Upper Santa Cruz River.

## Introduction

### History and Development of Water-Level Program

The collection of basic hydrologic data is an integral part of ground-water investigations in Arizona. The measurement of water levels and discharge of wells and the collection of water samples for chemical analysis are the principal types of data collected. Fluctuations of water levels in wells in response to replenishment by recharge or to withdrawals by natural discharge or pumping necessitate accurate periodic measurements of the water level and of the amount of ground-water pumpage in order to evaluate the water resources of the State. The objectives of this data-collection program are: (1) To aid in the prediction of trends in ground-water levels as related to present and future ground-water supplies; (2) to delineate the present areas of greatest development as well as establish the virgin ground-water conditions of areas of potential future development; (3) to aid in determining the geologic and hydrologic characteristics of areas as related to the ground-water regimen; (4) to determine

the changes in quality of water as to use and the "salt balance" problem; and (5) to provide continuous records of fluctuation of water levels in representative wells. These records serve as a means of correlation for basic research as well as a framework to relate short-term records compiled in a detailed regional investigation.

Open filing of these basic data was begun in Arizona in 1940, and each year they have been made available to the public in mimeographed form by the Geological Survey, prior to publication in Part 6 of the annual water-supply paper entitled "Water Levels and Artesian Pressures in Observation Wells in the United States."

The Arizona State Land Department, in an effort to disseminate factual data concerning the ground-water resources of the State, has begun a program of issuing these data as a State publication. This report is the first of a series of such publications.

### Acknowledgments

Many irrigation districts, power companies, and individuals provided splendid cooperation in furnishing much of the information in this report. The following organizations were particularly helpful in furnishing data on which figures for pumpage were based: Arizona Public Service Co.; Buckeye Irrigation District; Bu-Gas Distributors; Citizens Utility Co.; City of Douglas; City of Nogales; City of Tucson; Cortaro Farms; Duncan Utilities Co.; Eloy Light and Power Co.; Gila Water Commissioner; Goodyear Farms; Magma Natural Gas Co.; Maricopa County Municipal Water Conservation District; Mohawk Municipal Water Conservation District; Natural Gas Service Co.; Roosevelt Irrigation District; Roosevelt Water Conservation District; Rural Electrification Administration; Safford Municipal Utilities; Salt River Valley Water Users' Association; San Carlos Irrigation District; Trico Electric Cooperative; Tucson Gas Electric Light and Power Co.; U. S. Bureau of Indian Affairs; and U. S. Bureau of Reclamation.

### Scope of Water-Level Program

The water-level program in the State of Arizona is part of the State-Federal cooperative program financed jointly by State and Federal funds. These funds are administered under a cooperative agreement between the Arizona State Land Department and the U. S. Geological Survey. The work, performed by the Ground Water Branch of the Survey under this agreement, includes the collection of basic hydrologic data, geological and ground-water investigations of individual areas, and studies related to the solution of specific hydrologic and geologic problems. The funds available under this program are distributed among these three phases in such a way that the greater part is expended for the collection of basic hydrologic data.

The basic hydrologic data include the well and pump-age inventories, water-level and discharge measurements of wells and springs, and collection of water samples for chemical analysis. These data are necessary for the evaluation of the yearly changes and trends in ground-water conditions in Arizona and are used in the compilation of annual water-level reports.

Geological and ground-water investigations of individual areas are detailed studies made on a long-range basis in order to evaluate the ground-water resources more accurately. Three such studies are the Palomas Plain and Harquahala Plains projects, now nearing completion, and a new project which includes the portion of Apache County south of the Navajo Indian Reservation.

In recent years an increasing demand for information on the occurrence, movement, recharge, storage, discharge, fluctuation, and quality of ground water has led to a greater emphasis on studies involving the analysis of the available basic geologic and hydrologic data and to the collection of data specifically related to these problems. This phase of the program should provide a more accurate quantitative determination of the ground-water resources of the State. Current projects of this nature are the determination of productivity of deep aquifers and of changes in the chemical quality of ground water at depth in the Salt River valley, and the analysis of geologic and hydrologic data collected since 1903 in the Florence-Casa Grande-Komatke area in Pinal County. The collection, cataloging, and study of drill cuttings from selected wells and deep oil tests was continued during 1955.

Work financed entirely by Federal funds was continued in the Mogollon Rim region as part of the long-range investigation of the water resources of central Arizona. Work on the Navajo, Hopi, and Papago Indian Reservations, in cooperation with the Bureau of Indian Affairs, was continued during 1955. The Navajo-Hopi project is nearing completion, and a comprehensive report on the ground-water resources of this area will conclude this long-range project. Arizona's participation in the Nationwide program of determining changes in the quality of ground water included the collection of water samples from selected wells and springs for analysis. The monthly observation-well program in 1955 included the measuring of 18 federally and privately owned wells in the State. One of these is a Federal key well reported monthly as part of the Nationwide program.

Under the cooperative program, about 3,000 water-level measurements were made in 1,700 wells in 1955. The rate of discharge in gallons per minute was measured in about 350 wells. About 6,500 wells equipped with pumps rated more than 5 horsepower were used to irrigate approximately 1,200,000 acres in the State during 1955 (Arizona Agriculture 1956, by G. W. Barr: Arizona Agr. Expt. Sta., Bull. 270, January 1956).



Included in this report are summary statements of changes or trends in the ground-water conditions throughout the State by counties, tabulation of pumpage by areas, and water-level measurements for selected wells. Graphs are included to show comparative changes in the stage of the water level in selected wells, pumpage, and precipitation for most areas for the years 1946-55, inclusive. Other graphs show cumulative changes in the water level and pumpage in the Salt River valley, 1930-55, and in Pinal County, 1940-55. Contour maps showing the change in water level in some of the more intensely cultivated areas in the State also are included. Figure 1 shows the location of these areas in the State. Water-level measurements not included in this report are available in the open files in the offices of the Geological Survey, Ground Water Branch, at Tucson and at Phoenix.

#### List of Publications

The following reports on ground-water resources of Arizona were prepared and released to the open file by the Geological Survey in 1955:

- Geology and ground-water resources of the Bill Williams River valley near Artillery Peak and Alamo, Ariz., by H. N. Wolcott, H. E. Skibitzke, and L. C. Halpenny: U. S. Geol. Survey Water-Supply Paper 1360-D (in press).
- Geology and ground-water resources of the Douglas basin, Arizona, by D. R. Coates and R. L. Cushman: U. S. Geol. Survey Water-Supply Paper 1354, 56 p., 5 pl., 5 figs., 4 tables.
- Memorandum on the geology and ground-water resources of Dripping Springs basin, Gila and Pinal Counties, Ariz., by D. R. Coates, typed, 11 p., 1 pl., 2 figs., 4 tables.
- Pumpage and ground-water levels in Arizona in 1954, by P. W. Johnson, N. D. White, and H. N. Wolcott, mimeographed, 30 p., 11 figs.
- Memorandum on water-supply investigations at Shiprock School, Navajo Indian Reservation, San Juan County, N. Mex., by J. T. Callahan and J. W. Harshbarger, typed, 11 p., 1 fig.
- Stratigraphy of the uppermost Triassic and the Jurassic rocks of the Navajo country, by J. W. Harshbarger, C. A. Repenning, and J. H. Irwin: U. S. Geol. Survey Professional Paper 291 (in press).

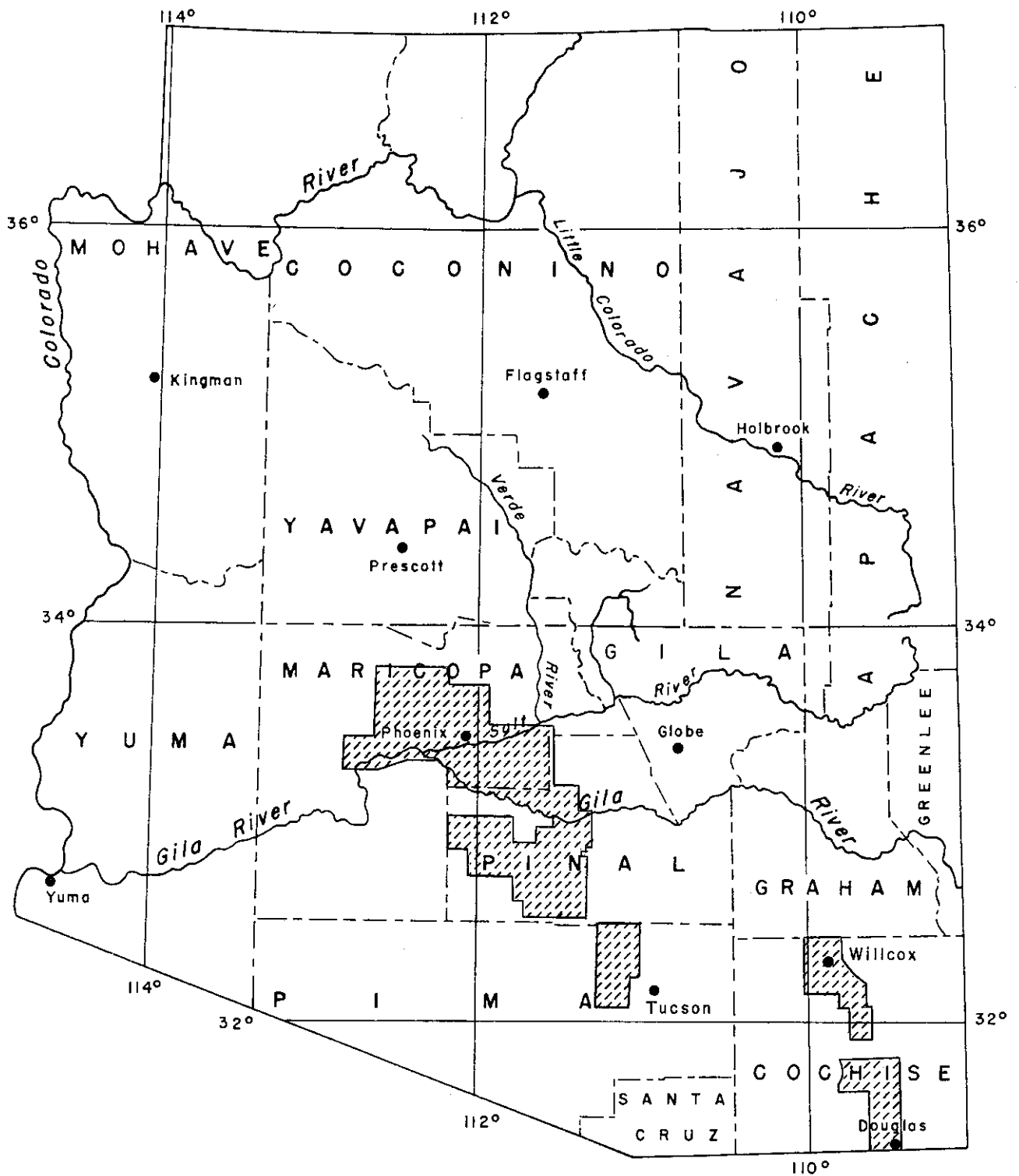


Figure 1.--Index of areas for which maps showing change in water level are included in this report.

- Revisions in correlation and nomenclature of Triassic and Jurassic formations in southwestern Utah and northern Arizona, by Paul Averitt, Janis S. Detterman, John W. Harshbarger, Charles A. Repenning, and Richard F. Wilson: Am. Assoc. Petroleum Geologists Bull., v. 39, no. 12, p. 2515-2524.
- Ground water in the Wupatki and Sunset Crater National Monuments, Coconino County, Arizona, by O. J. Cosner, typed, 19 p., 1 pl., 3 figs., 4 tables.
- Effect of western drought on the water resources of Safford Valley, Arizona, 1940-52, by R. L. Cushman and L. C. Halpenny: Am. Geophys. Union Trans., v. 36, no. 1, p. 87-94.
- Ground-water resources and geology of the Gila Bend and Dendora areas, Maricopa County, Arizona, by P. W. Johnson and J. M. Cahill, typed, 43 p., 4 pl., 6 figs., 5 tables.
- Memorandum on geology and ground-water resources in the vicinity of Oracle, Pinal County, Ariz., by L. A. Heindl, typed, 11 p., 2 figs., 2 tables.
- Ground-water conditions between Oracle and Oracle Junction, Pinal County, Arizona, by L. A. Heindl, typed, 5 p., 1 fig., 2 tables.

### Precipitation

Climatological data in this report were obtained from the Annual Summary 1955, Climatological Data, U. S. Weather Bureau, written by R. A. Dightman. Temperatures in Arizona averaged below normal for the first 8 months of 1955 and averaged about normal for the last 4 months. The average temperature for the year for the State was 59.0° F., 1.0° below normal.

The Weather Bureau has divided the State into seven divisions for the purpose of identifying areas where similar conditions exist. These are discussed in the following:

"For the year as a whole the three northern divisions averaged dry, and it was very dry in the Northeastern Division except for the three month June-August period. The three southern divisions fared better, but were dry the last four months. Most important to the State's economy of the year's precipitation features was the plentiful summer precipitation in nearly all sections. June has been wetter in Arizona only twice since 1895, and July and August both averaged over 150 percent of normal with only slight variations between divisions. In sharp contrast to the preceding wet three months, September was very dry, having been drier only once before (1953) in 60 years. By divisions the Northeastern averaged shortest of normal with a 3.03-inch deficiency, the South Central had the greatest excess, 1.02 inches . . . . . Driest stations mostly were either along the normally dry western edge of Arizona or in the northern and eastern parts of the Northeastern Division. . . . . Severe thunderstorms occurred several times in several areas after July 15 to late in August, but although damage was locally severe, the worst storms covered limited areas . . . . . As a whole the year's weather (1955) was favorable for ranches and farms in spite of early and late season dry spells . . . . . Aside from the early season freezes, and slight local frost damage in the late fall, irrigated crops did quite well all year and water supplies, which had dropped to very low levels in some reservoirs during the spring, were improved greatly by the July and August rains."

Total annual runoff figures for 1955 as measured by the Geological Survey include: Salt River near Roosevelt, 222,000 acre-feet; Tonto Creek near Roosevelt, 65,010 acre-feet; and Verde River above Horseshoe Dam, 214,800 acre-feet.

## Pumpage

Table 1 shows the approximate amount of ground water pumped in areas of irrigation development and the totals for the State for the 5-year period 1951-55. These totals have been rounded because the measurements are not precise enough to justify a more exact figure. Therefore, the total pumpage for the State is estimated to have been about 4,400,000 acre-feet in 1955. This estimate is somewhat less than the amount of ground water pumped in 1954, and about twice the amount of water diverted from surface-water supplies in the State during 1955.

Data from the University of Arizona (Barr, 1956) indicate that about 1,200,000 acres of land was irrigated in 1955 in the State. This represents a decrease of about 50,000 acres from 1954. According to Dr. Barr, cash income from crops and livestock amounted to about 335 million dollars in 1955, a decrease of about 45 million dollars from 1954.

The small decrease in acreage and the greater-than-normal precipitation during the growing season may account for the decrease in the amount of ground water pumped for irrigation.

## Well-Numbering System

The well numbers used by the Ground Water Branch of the Geological Survey in Arizona are in accordance with the Bureau of Land Management system of land subdivision. The land survey in Arizona is based on the Gila and Salt River base line and meridian which divide the State into four quadrants (fig. 2). These quadrants are designated counterclockwise by the capital letters A, B, C, and D. All land north and east of the point of origin is in A quadrant, that north and west in B quadrant, that south and west in C quadrant, and that south and east in D quadrant. The first digit of a well number indicates the township, the second the range, and the third the section in which the well is situated. The lowercase letters a, b, c, and d, after the section number, indicate the well location within the section. The first letter denotes a particular 160-acre tract (fig. 2), the second the 40-acre tract, and the third the 10-acre tract. These letters are assigned in a counterclockwise direction beginning in the northeast quarter. If the location is known within a 10-acre tract, three lowercase letters are shown in the well number. In the example shown, well number (D-4-5)19caa designates the well as being in the NE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 19, T. 4 S., R. 5 E. Where there is more than one well within a 10-acre tract, consecutive numbers beginning with 1 are added as suffixes.

Table 1.--Pumpage, in acre-feet, from wells in principal ground-water areas in Arizona

Area	1951	1952	1953	1954	1955
Cochise County:					
San Simon Basin <u>a/</u>	(b)	15,000	25,000	32,000	40,000
Willcox Basin	38,000	39,000	75,000	70,000	80,000
Douglas Basin	38,000	42,000	45,000	42,000	50,000
Graham County:					
Safford Valley	125,000	70,000	120,000	90,000	90,000
Greenlee County:					
Duncan Valley <u>c/</u>	33,000	17,000	30,000	27,000	25,000
Maricopa County:					
Salt River valley area <u>d/</u>	1,910,000	2,000,000	2,300,000	2,300,000	2,200,000
Waterman Wash area	(e)	(e)	28,000	30,000	40,000
Harquahala Plains area	(e)	(e)	20,000	33,000	30,000
Gila Bend area	(110,000	120,000	145,000	139,000	140,000
Dendora area	)	6,000	5,000	7,000	6,000
Pima County:					
Part of Santa Cruz Basin	240,000	250,000	380,000	300,000	300,000
Pinal County:					
Part of Santa Cruz Basin and Gila River Basin	1,030,000	950,000	1,400,000	1,200,000	1,200,000
Santa Cruz County:					
Part of Santa Cruz Basin	30,000	27,000	27,000	20,000	20,000
Yuma County:					
Palomas Plain area	15,000	26,000	47,000	30,000	25,000
Wellton-Mohawk area	50,000	40,000	16,000	9,000	8,000
South Gila Valley	62,000	60,000	60,000	60,000	55,000
Northern Yuma County <u>f/</u>	(b)	(b)	28,000	26,000	25,000
Other areas: <u>g/</u>	75,000	65,000	75,000	100,000	100,000
Total:	3,756,000	3,727,000	4,826,000	4,515,000	4,434,000
Rounded to:	3,750,000	3,730,000	4,800,000	4,500,000	4,400,000

a/ Includes Bowie area.

b/ Not determined.

c/ Does not include Virden Valley, N. Mex.

d/ Includes Queen Creek area, Maricopa and Pinal Counties.

e/ From 1950 to 1952, inclusive, was included in Salt River valley area.

f/ Ranegras Plain and McMullen Valley.

g/ Estimated pumpage for smaller irrigated areas for which records have not been collected. These include: Upper San Pedro Valley, Lower San Pedro Valley, Cactus Flat-Artesia area, St. Johns area, Snowflake-Taylor area, Hunt area, Woodruff area, Joseph City area, Chino Valley, Williamson Valley, Skull Valley, Peoples Valley, Date Creek area, Big Sandy Valley, Valentine area, and Parker area.



## Water-Level Fluctuations

The following summaries include the water-level fluctuations and general ground-water conditions for each of the 14 counties of Arizona, listed alphabetically.

Apache County. --Water levels in wells in Apache County indicated a slight rise during 1955. Most of the wells in this area are under artesian pressure with heads ranging from slightly above the surface to about 30 feet below the surface. Precipitation at St. Johns amounted to 10.13 inches in 1955, about 88 percent of normal.

Cochise County. --There are four principal areas of development in Cochise County: (1) the Upper San Pedro Valley, (2) the San Simon basin, (3) the Willcox basin, and (4) the Douglas basin.

Water levels in wells in the Upper San Pedro Valley indicated an average rise of more than 1 foot in 1955. Wells (D-21-21)11aad and (D-20-20)32cdb (fig. 3), in the Charleston-Fort Huachuca area, both showed a rise. Well (D-16-20)34acd (fig. 3), near Pomerene, showed a negligible rise, and well (D-17-21)32bad (fig. 3), near St. David, showed a decline of more than 1 foot during 1955. Precipitation at Fairbank amounted to 13.95 inches, about 18 percent greater than normal.

The amount of ground water pumped in the San Simon basin in 1955 was about 40,000 acre-feet, an increase of about 8,000 acre-feet over 1954 (table 1). Many wells in this basin tap water under artesian pressure, and some of them flow, but all irrigation wells must be pumped to provide sufficient water. Cultivation in the San Simon basin is centered in two areas near the towns of San Simon and Bowie. Water levels in wells in the San Simon area indicated an average decline of about 6 feet during 1955. Figure 3 shows hydrographs of two wells in this area. Water levels in the area ranged from less than 10 to more than 100 feet below the surface. Precipitation at San Simon was 5.81 inches in 1955, about 67 percent of normal. In the Bowie area, water levels in wells showed declines ranging from 10 to 62 feet and averaging nearly 30 feet during 1955. The greatest decline occurred in the area about 2 miles south of Bowie. Well (D-13-29)6ccc (fig. 3) showed a decline of about 30 feet during 1955. Depth to water ranged from less than 25 feet on the eastern edge of the area to about 300 feet on the western edge. Precipitation at Bowie was 7.28 inches during 1955, about 78 percent of normal.

Pumpage of ground water in the Willcox basin amounted to about 80,000 acre-feet in 1955, an increase of 10,000 acre-feet over 1954 (table 1). This may be chiefly attributed to an increase in acreage under cultivation. There are two main areas of development in the Willcox basin, the Stewart area, northwest of Willcox, and the Kansas Settlement area, southeast of Willcox.



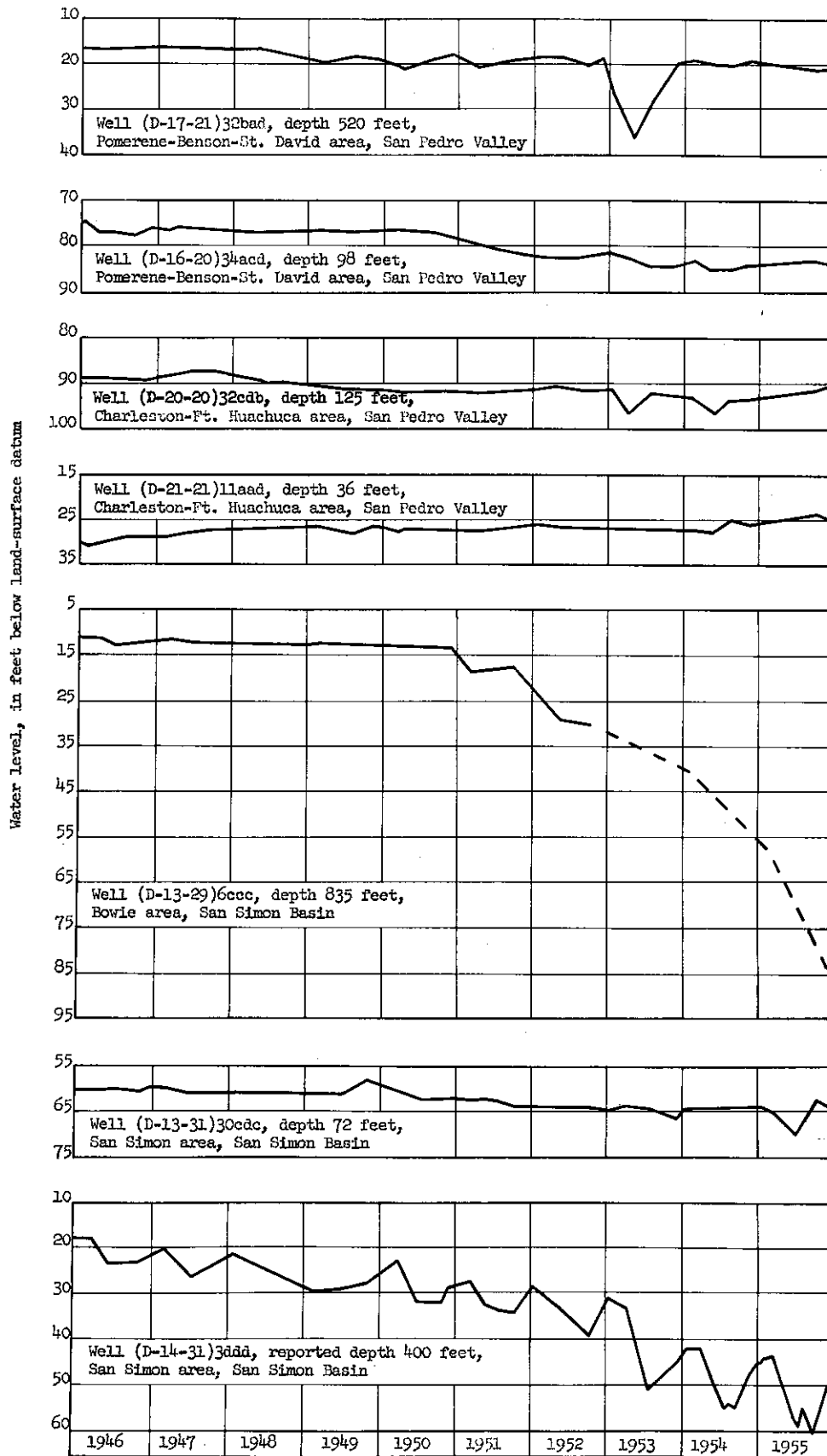


Figure 3.--Water levels in wells in San Pedro Valley and San Simon Basin, Cochise County.

Figure 4 shows contours of the change in the water level in the Willcox basin for 1955. In the Stewart area, fluctuations in water levels in wells ranged from no change to a decline of more than 8 feet averaging about 3 feet of decline during 1955. Small rises were measured in a few shallow wells. In general, the lesser declines were measured near Willcox and on the outer fringes of the irrigated area and the greater declines in the center of the irrigated area and toward the northern edge of the basin. Depths to water ranged from about 30 feet on the southern edge of the irrigated area near Willcox to more than 100 feet on the northern fringe of the cultivated area. South of Willcox and north of the playa, water levels averaged about 25 feet below the surface.

Water levels in wells in the Kansas Settlement area of Willcox basin indicated an average decline of about 6 feet during 1955. Declines of as much as 12 feet were measured in the center of the irrigated area, and small rises in water level occurred in some shallow wells along the outer fringes of the area. The range in depth to water was from 30 to more than 200 feet. Wells (D-14-23)36baa and (D-14-25)6cac (fig. 5), outside the cultivated area between the Stewart and Kansas Settlement developments in Willcox basin, showed no decline during 1955. Precipitation at Willcox amounted to 10.01 inches in 1955, about 84 percent of normal.

About 50,000 acre-feet of ground water was pumped in the Douglas basin in 1955 (table 1). This represents an increase of about 8,000 acre-feet over the amount pumped during 1954. Figure 6 shows contours of the changes in the water level for 1955 in the Douglas basin. Fluctuations in water levels in the basin ranged from a rise of slightly less than 2 feet in a few wells outside the cultivated area to a decline of about 3 feet in the center of the cultivated area. Between Double Adobe and the Mexican border, the average decline in water level was about half a foot. From McNeal to Double Adobe, the decline in water level averaged slightly more than 1 foot. From the vicinity of Elfrida north to the limit of the irrigated area, water levels showed an average decline of slightly more than 2 feet. For the basin as a whole, the average change in water level was a decline of about 2 feet. Figure 5 shows hydrographs of two wells in the basin. The range in depth to water within the cultivated area in the basin was from about 35 feet along Whitewater Draw to more than 100 feet toward the mountain fronts. Precipitation at Douglas amounted to 12.01 inches during 1955, about 99 percent of normal.

Coconino County. --Water levels in wells in the vicinity of Williams indicated a rise of about half a foot in 1955. However, the shallow water table in this area is readily affected by precipitation. Precipitation at Williams during 1955 was 21.95 inches, about 4 percent above normal.

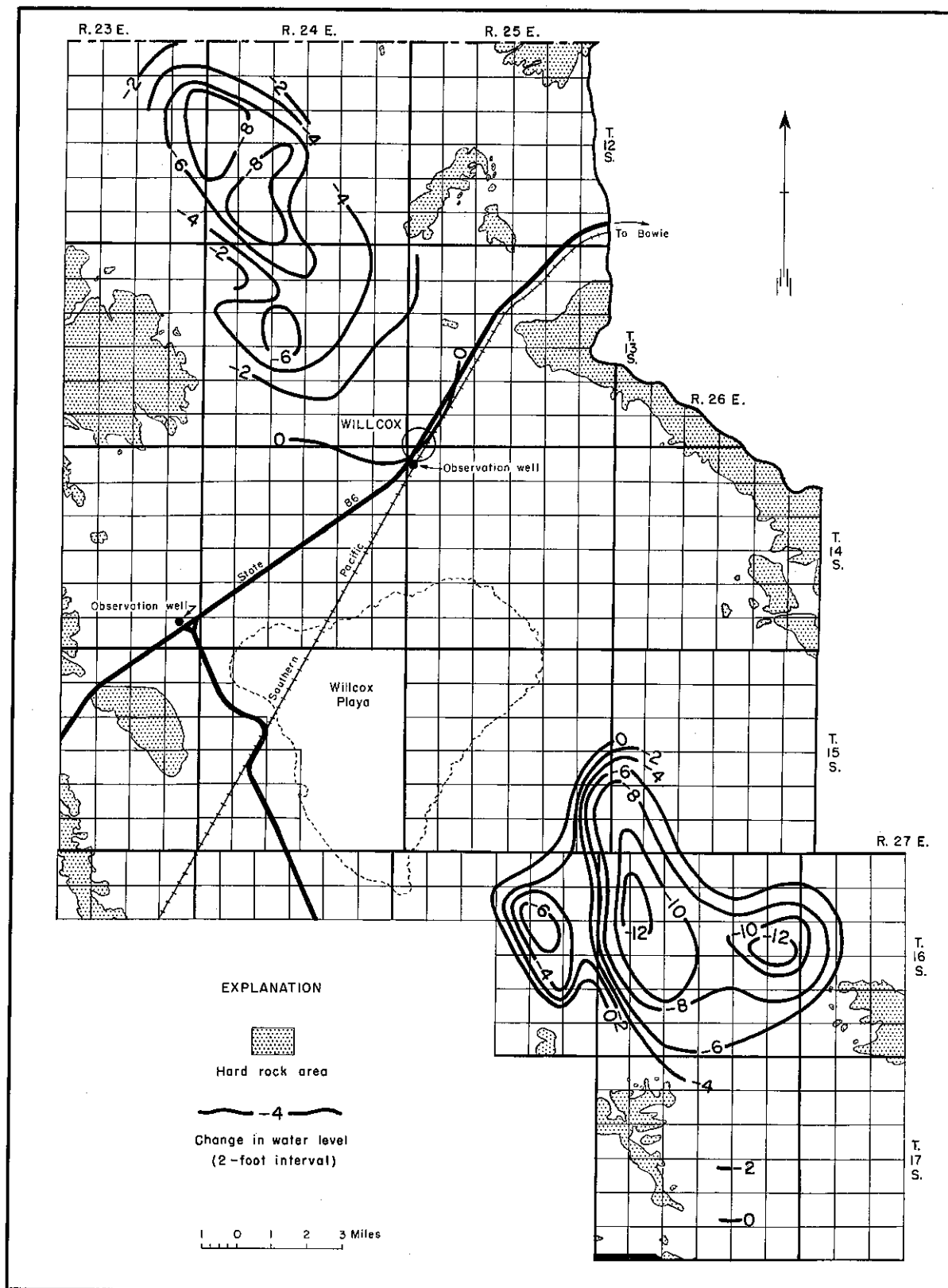


Figure 4.-- Change in ground-water level from spring 1955 to spring 1956 in Willcox basin, Cochise County, Ariz.

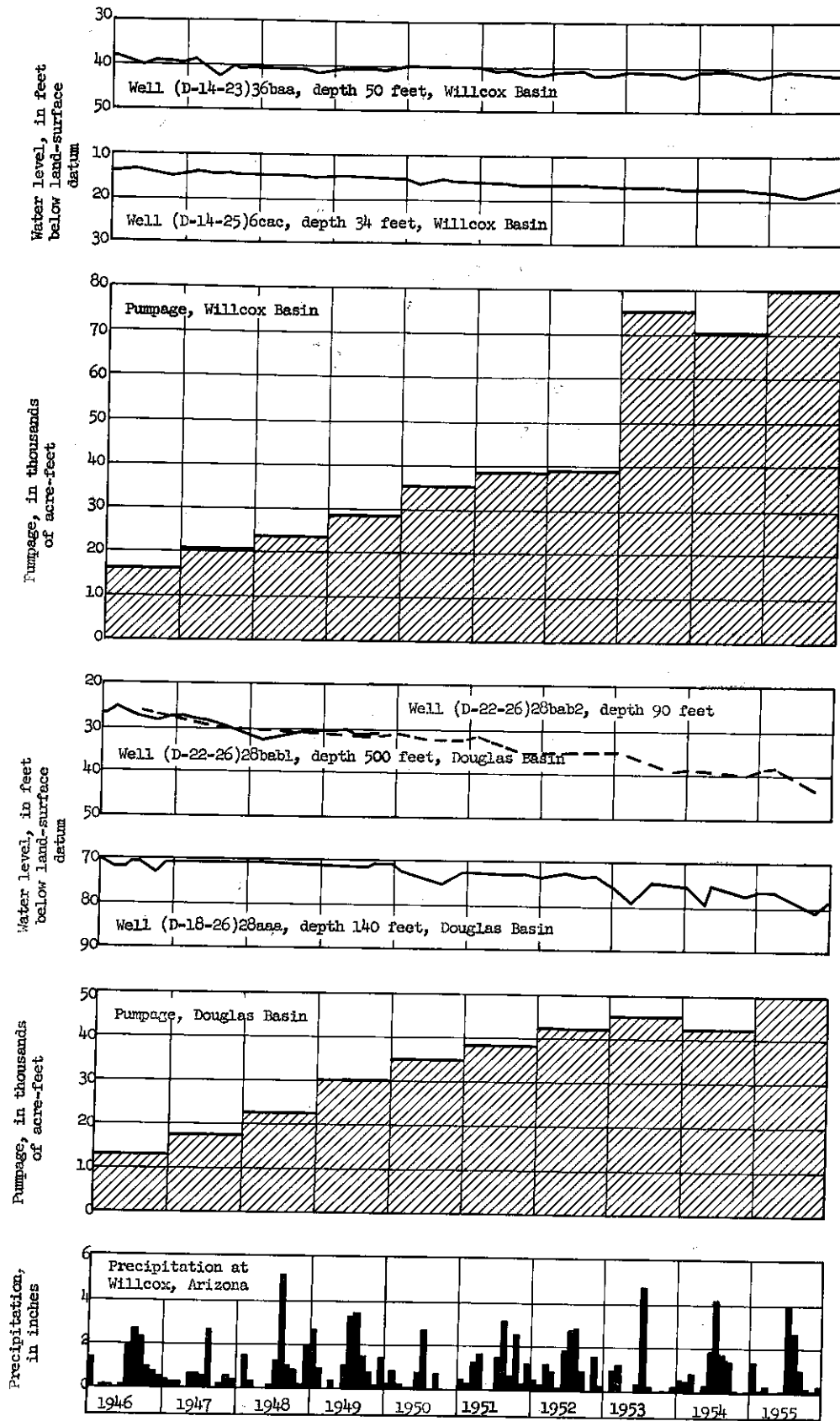


Figure 5.--Water levels in wells and pumpage in Willcox and Douglas Basins, and precipitation at Willcox, Cochise County.

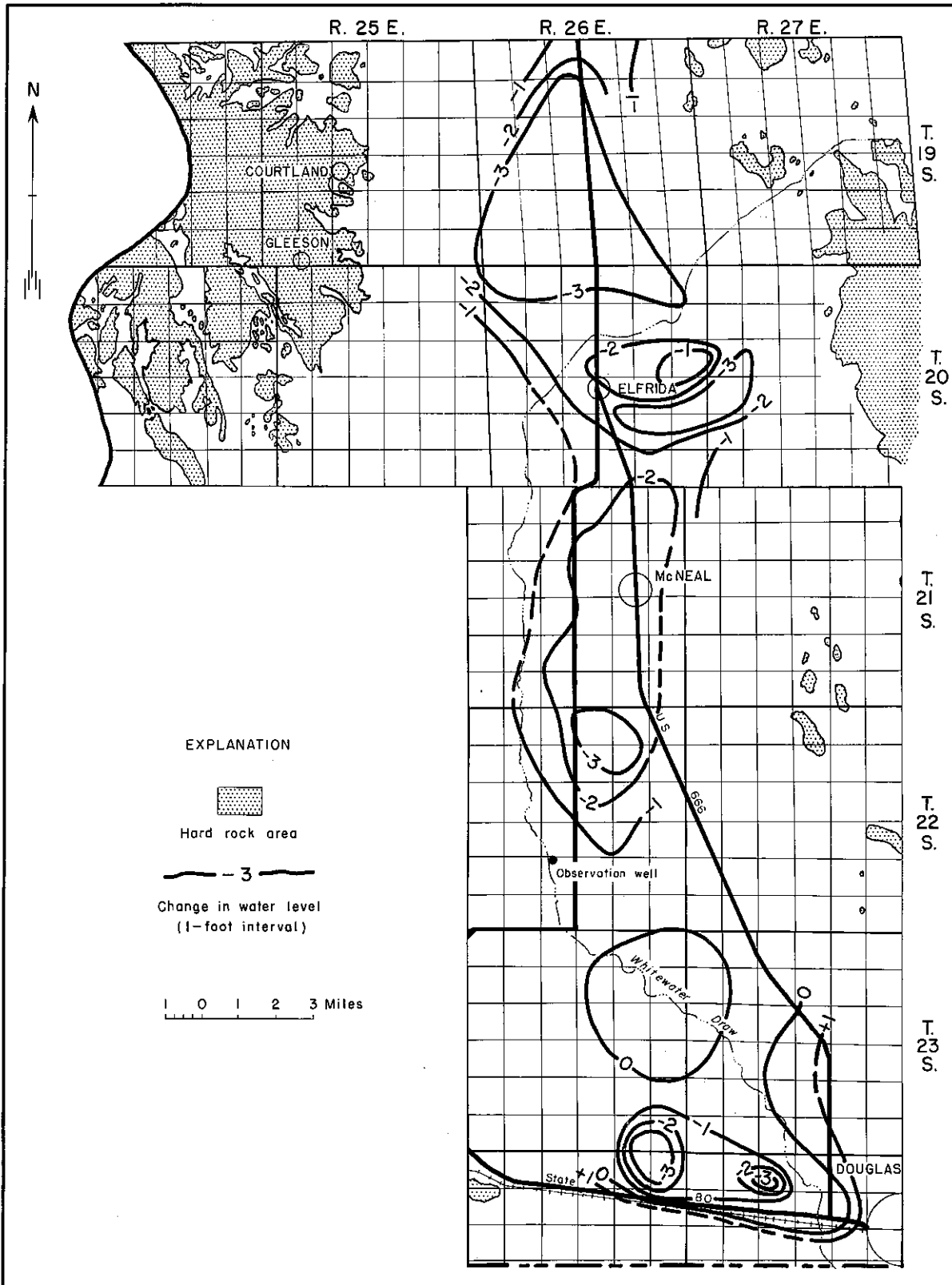


Figure 6.-- Change in ground-water level from spring 1955 to spring 1956 in Douglas basin, Cochise County, Ariz.

In a few places in the Flagstaff area, small supplies of water are obtained from relatively shallow wells. These wells showed a decline of less than half a foot. Precipitation at Flagstaff amounted to 17.97 inches in 1955, about 97 percent of normal.

Gila County. --In the upper Pinal Creek and Dripping Springs areas of Gila County, water levels fluctuated widely during 1955; but no particular pattern of rise or decline could be determined. Precipitation at Globe was 15.53 inches for 1955, about 3 percent greater than normal.

Graham County. --Water levels in wells in Safford Valley indicated a rise during 1955. In the area from San Jose to Safford, water levels in wells showed fluctuations ranging from a decline of about 1 foot to a rise of more than 6 feet, averaging about 2 feet of rise during 1955. Well (D-7-26)22bac (fig. 7) in this area shows a rise of about 2 feet. In the Safford-Pima area, fluctuation of water levels in wells ranged from a decline of about 5 feet to a rise of about  $1\frac{1}{2}$  feet; in the Pima-Cork area, water levels showed an average of less than half a foot of decline for 1955. Well (D-6-24)5acc (fig. 7) is representative of this area. Changes in the stage of the water table in wells in the Pima-Eden area during 1955 ranged from about  $1\frac{1}{2}$  feet of decline to about 2 feet of rise. In the Cork-Geronimo area, an average rise in water level of slightly less than half a foot was measured; fluctuations ranged from less than 1 foot of decline to about 3 feet of rise. Well (D-6-28)31aac (fig. 7), east of the San Jose-Safford area, showed about 4 feet of decline for 1955. Well (D-4-22)13acc (fig. 7), representative of the area north of Geronimo, showed about 1 foot of rise in water level during 1955. About 90,000 acre-feet of ground water was pumped in the Safford Valley in 1955, the same as in 1954 (table 1). Surface-water diversions in the valley for 1955 amounted to about 6,000 acre-feet more than in 1954. Precipitation at Safford was 6.59 inches in 1955, about 75 percent of normal. In the Aravaipa Valley, water levels in wells showed an average decline of about 2 feet during 1955.

Greenlee County. --Water levels in wells in Duncan Valley indicated both rises and declines during 1955. In the area between the Arizona-New Mexico State line and Sheldon, the average decline in water level was about 3.5 feet. Fluctuations in water levels in this area ranged from a rise of about half a foot to a decline of almost 8 feet. Well (D-8-32)32cda (fig. 8) in this area showed no appreciable change in water level during 1955. Between Sheldon and York the range in fluctuations in the water level was from a rise of about  $1\frac{1}{2}$  feet to a decline of slightly more than 4 feet, averaging nearly half a foot of decline. Well (D-7-31)4bcc about halfway between Sheldon and York showed a decline of 3 feet, and well (D-6-31)19dad, near York, showed a rise of about 1 foot in water level during 1955 (fig. 8). About 25,000 acre-feet of ground water was pumped (table 1) and about 13,000 acre-feet of surface

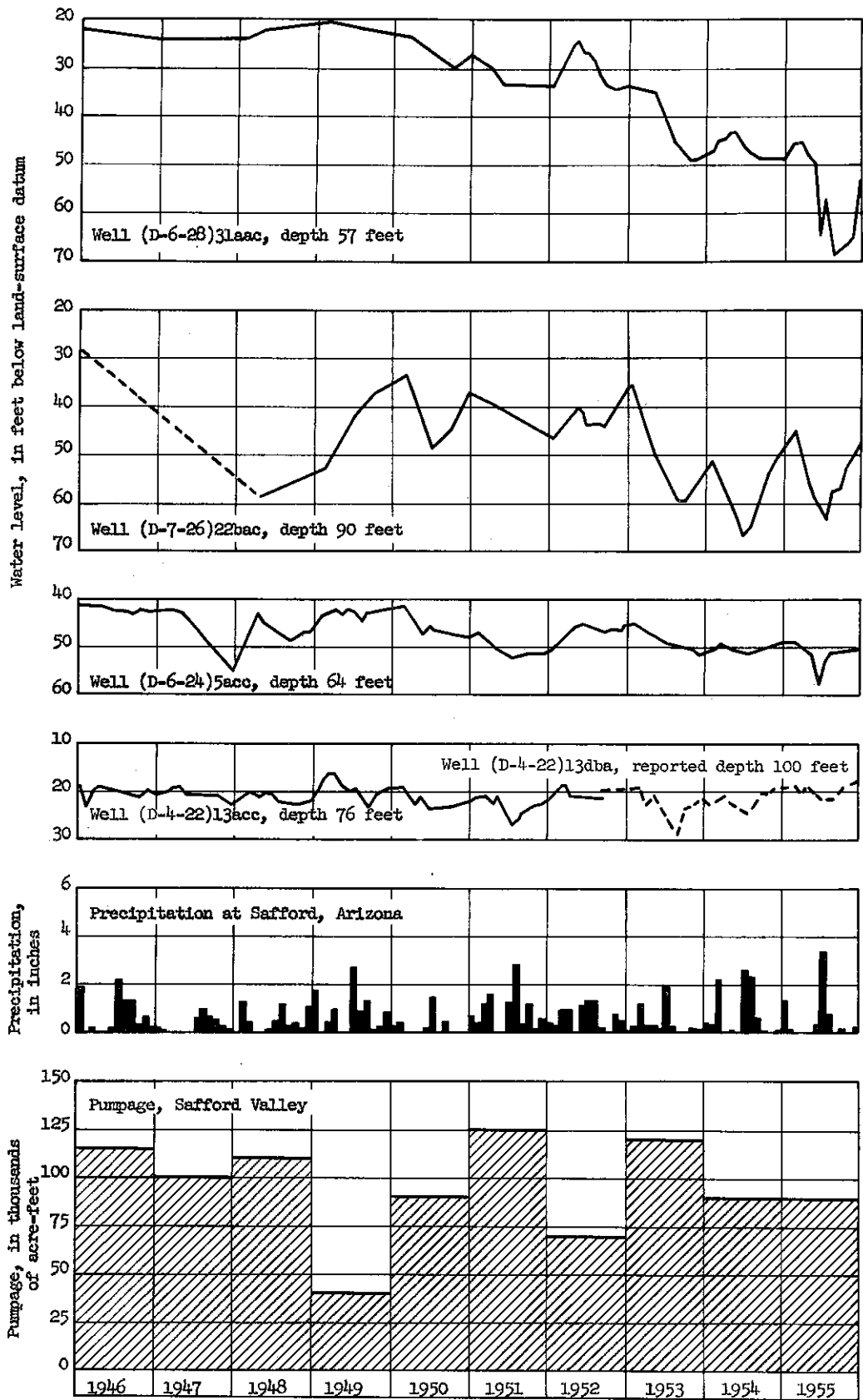


Figure 7.--Water levels in wells, precipitation at Safford, and pumpage in Safford Valley, Graham County.

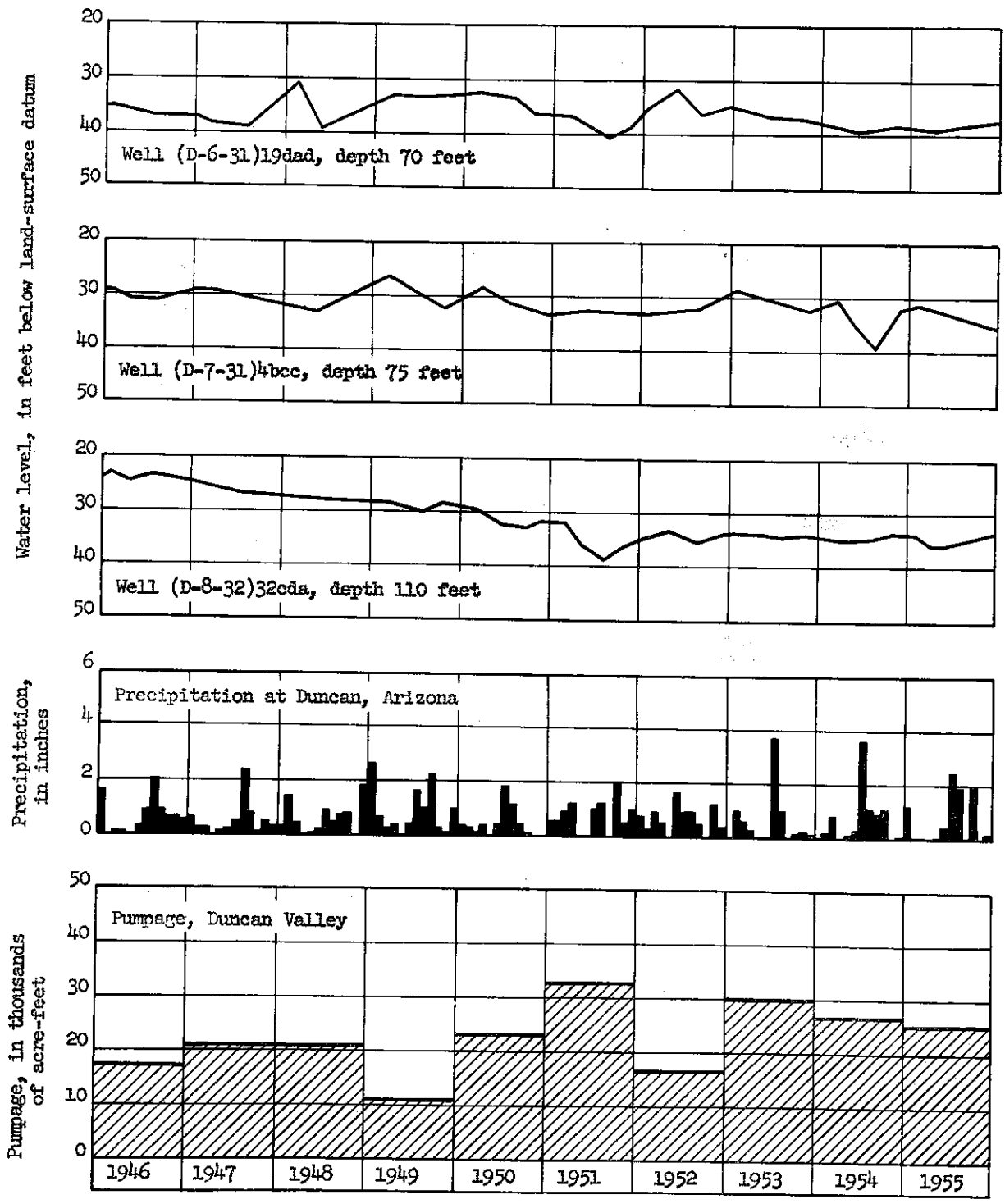


Figure 8.--Water levels in wells, precipitation at Duncan, and pumpage in Duncan Valley, Greenlee County.



water was diverted for irrigation in Duncan Valley in 1955, about the same amounts as in 1954. Precipitation at Duncan amounted to 8.62 inches during 1955.

Maricopa County. --Water levels in Maricopa County have shown an irregular pattern in recent years, owing to year-round pumping. The average cumulative net changes in water levels in various parts of the Salt River valley are shown in figure 9a and figure 9b. The average cumulative change of the water levels and pumpage in the Salt River Valley are shown in figure 10. Figures 11 through 19 show contours of the change in water level in various parts of the Salt River valley for the periods spring 1955 to spring 1956, spring 1950 to spring 1956, and spring 1942 to spring 1956, respectively.

In 1955, in the Queen Creek-Higley-Gilbert area, water-level fluctuations ranged from no change to about 20 feet of decline, averaging about 7 feet of decline (fig. 11). In areas where supplemental surface water was available, the average decline was only about 3 feet for 1955. For the period spring 1950 to spring 1956 declines ranged from about 50 to about 110 feet (fig. 12), and for spring 1942 to spring 1956, about 25 to 150 feet (fig. 13). The eastern portion of the Queen Creek area lies in Pinal County but is included in this section because it is a part of this area.

In the Tempe-Mesa-Chandler area, water-level fluctuations ranged from a rise of about 5 feet to a decline of about 30 feet and indicated an average decline of about 6 feet for 1955 (fig. 11). In this area, declines in water level ranged from about 10 to about 70 feet for the period spring 1950 to spring 1956 (fig. 12), and from about 25 to about 150 feet for the period spring 1942 to spring 1956 (fig. 13).

Water levels in the Phoenix-Glendale-Tolleson area declined an average of about 6 feet for 1955, ranging from zero to about 15 feet (fig. 14). For the period spring 1950 to spring 1956, declines ranged from zero to about 60 feet (fig. 15), and from zero to about 150 feet for the period spring 1942 to spring 1956 (fig. 16). An average decline of about 11 feet was measured in the Deer Valley area for 1955.

Water-level declines in the Litchfield-Beardsley-Marinette area averaged 6 feet, ranging from about 5 to 20 feet in 1955 (fig. 17). This average rate of decline was less than in 1954. In this area, declines in water level ranged from about 30 to 80 feet for the period spring 1950 to spring 1956 (fig. 18), and from about 75 to about 150 feet for the period spring 1942 to spring 1956 (fig. 19).

Cumulative net changes of average water level, in feet, 1930-55

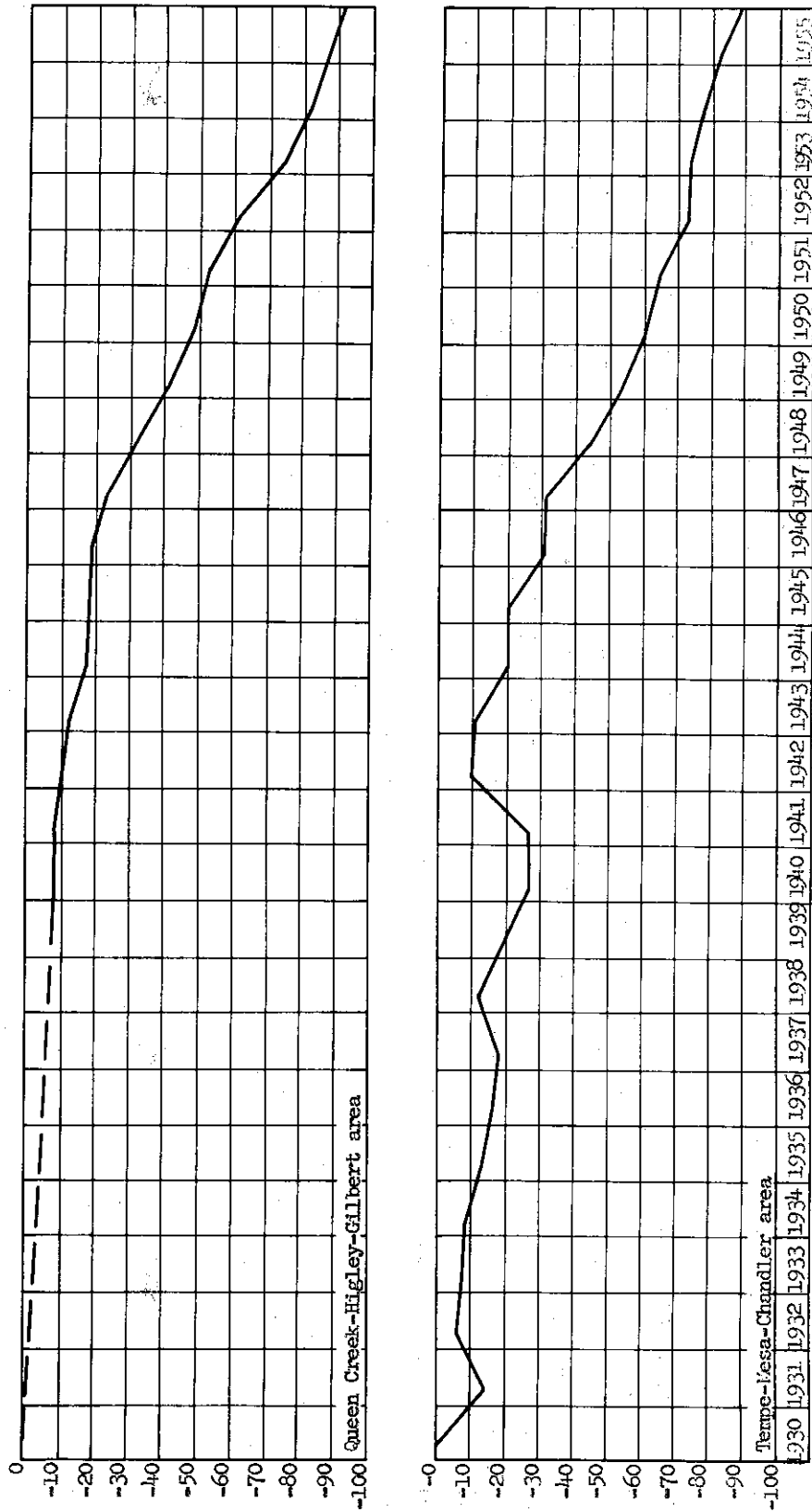


Figure 9a.--Cumulative net changes of average water level in various parts of Salt River Valley, Maricopa County.

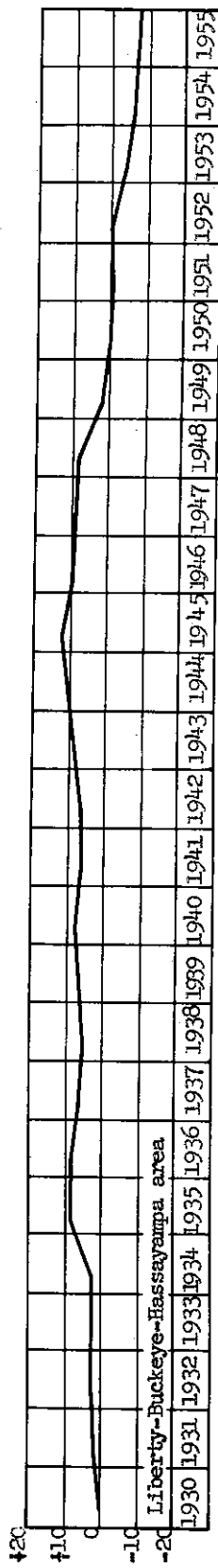
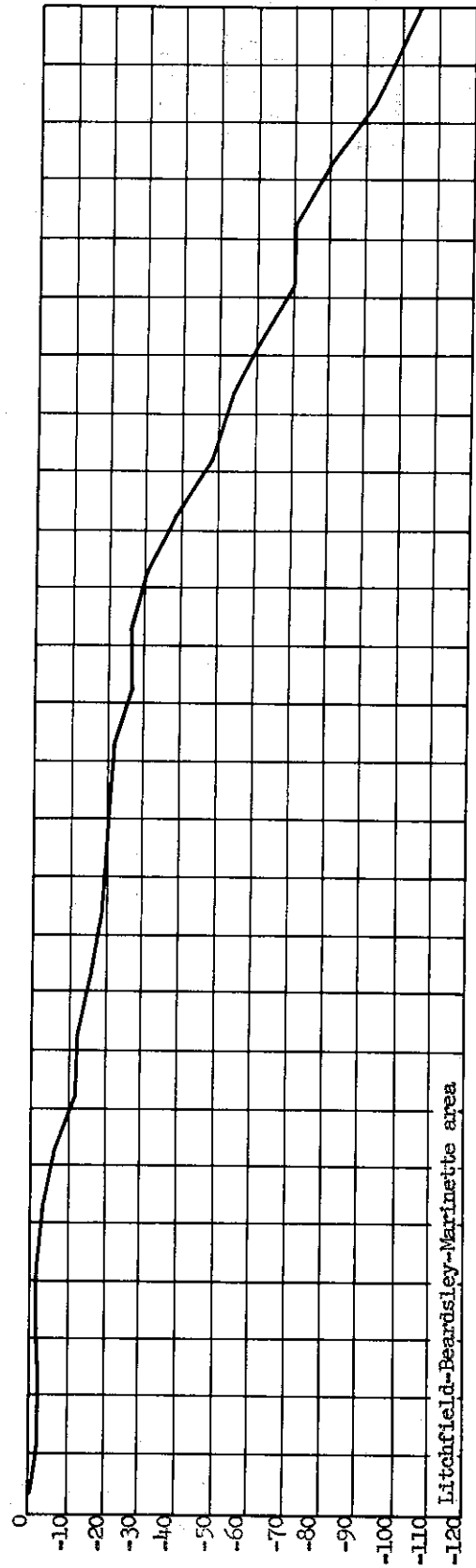
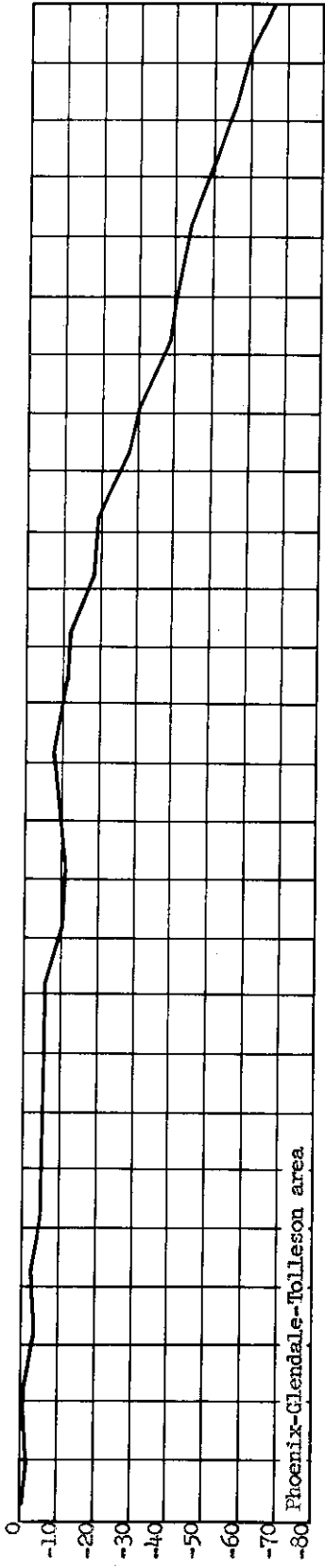
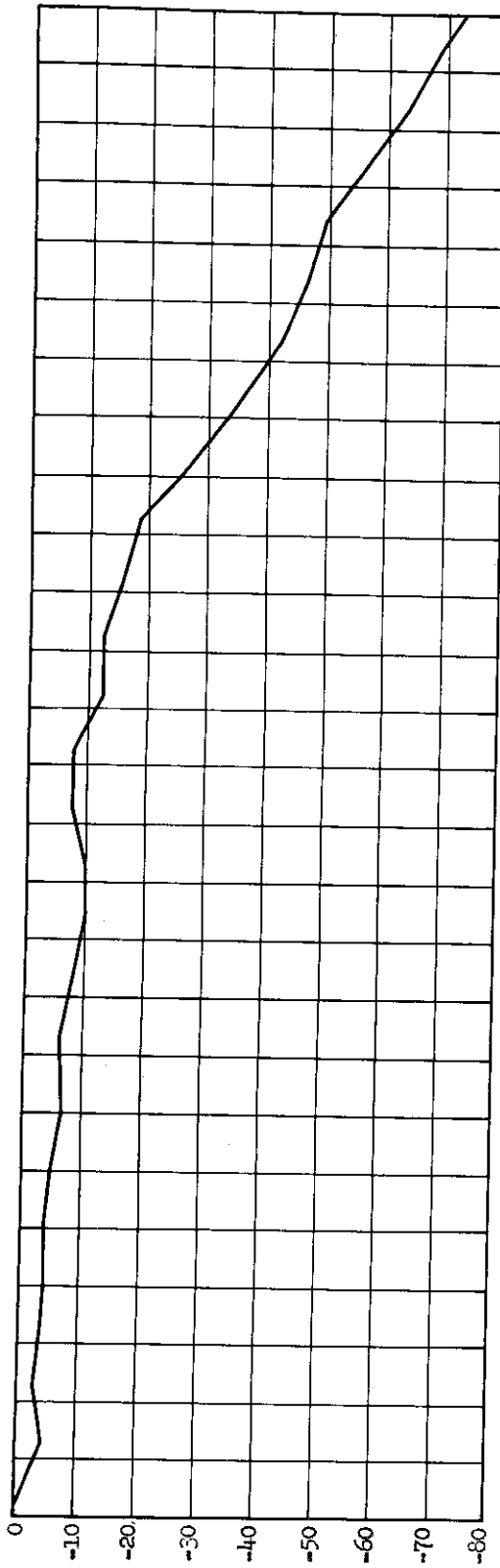


Figure 9b.---Cumulative net changes of average water level in various parts of Salt River Valley, Maricopa County.

Cumulative net changes of average water level, in feet, 1930-55

Cumulative net change of water level, in feet, 1930-55



Pumps, in hundreds of thousands of acre-feet

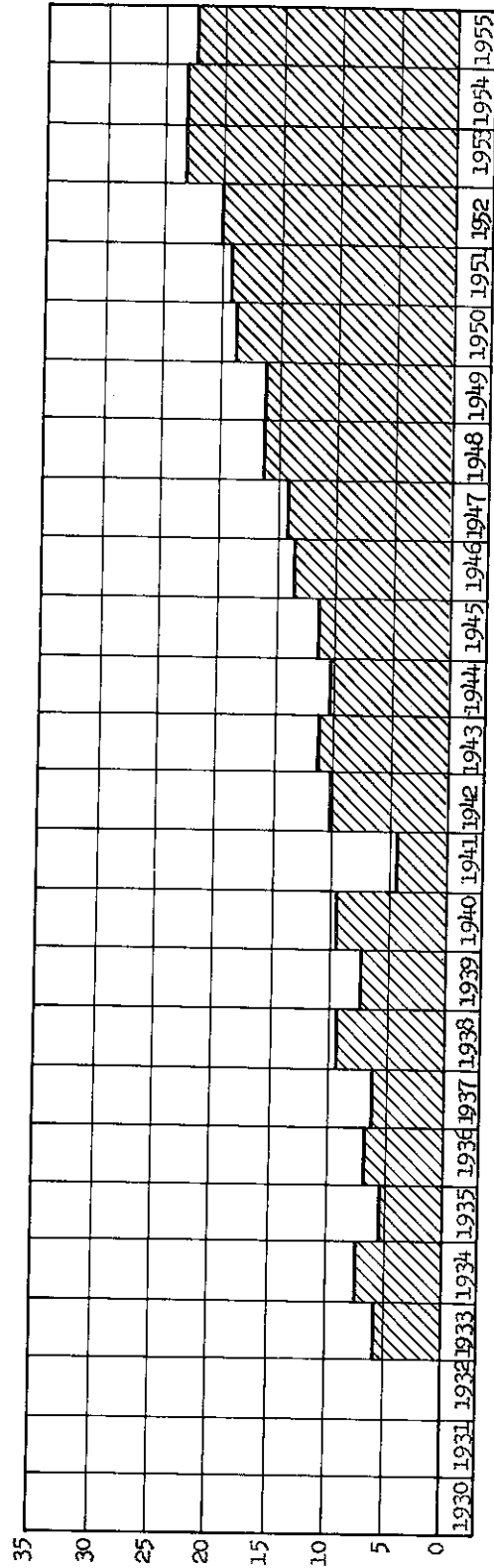


Figure 10.--Cumulative net change in water level and water pumped for irrigation in the Salt River Valley area, Maricopa County.

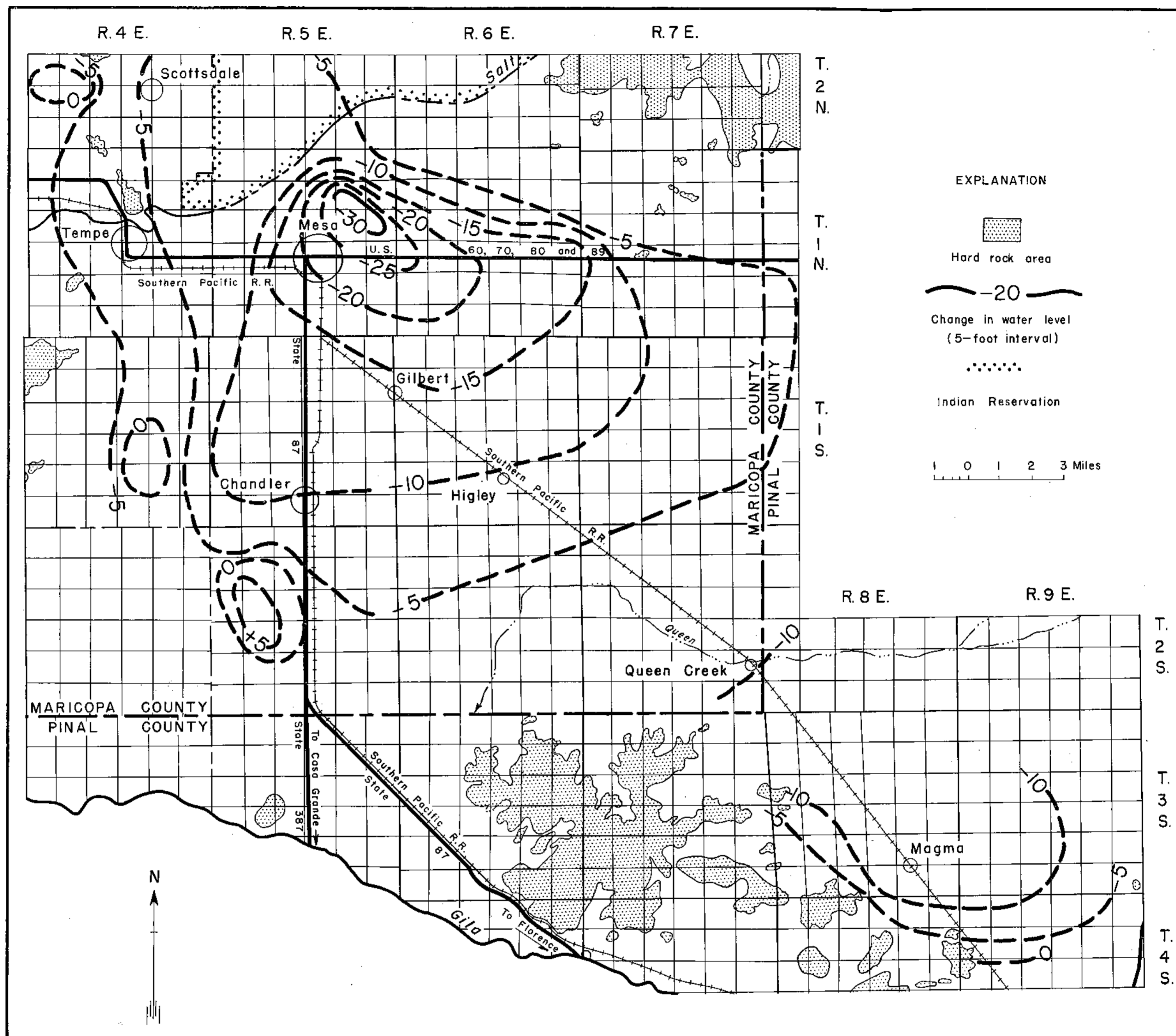


Figure 11.-- Change in ground-water level from spring 1955 to spring 1956 in Queen Creek-Higley-Gilbert and Tempe-Mesa-Chandler areas, Maricopa and Pinal Counties, Ariz.

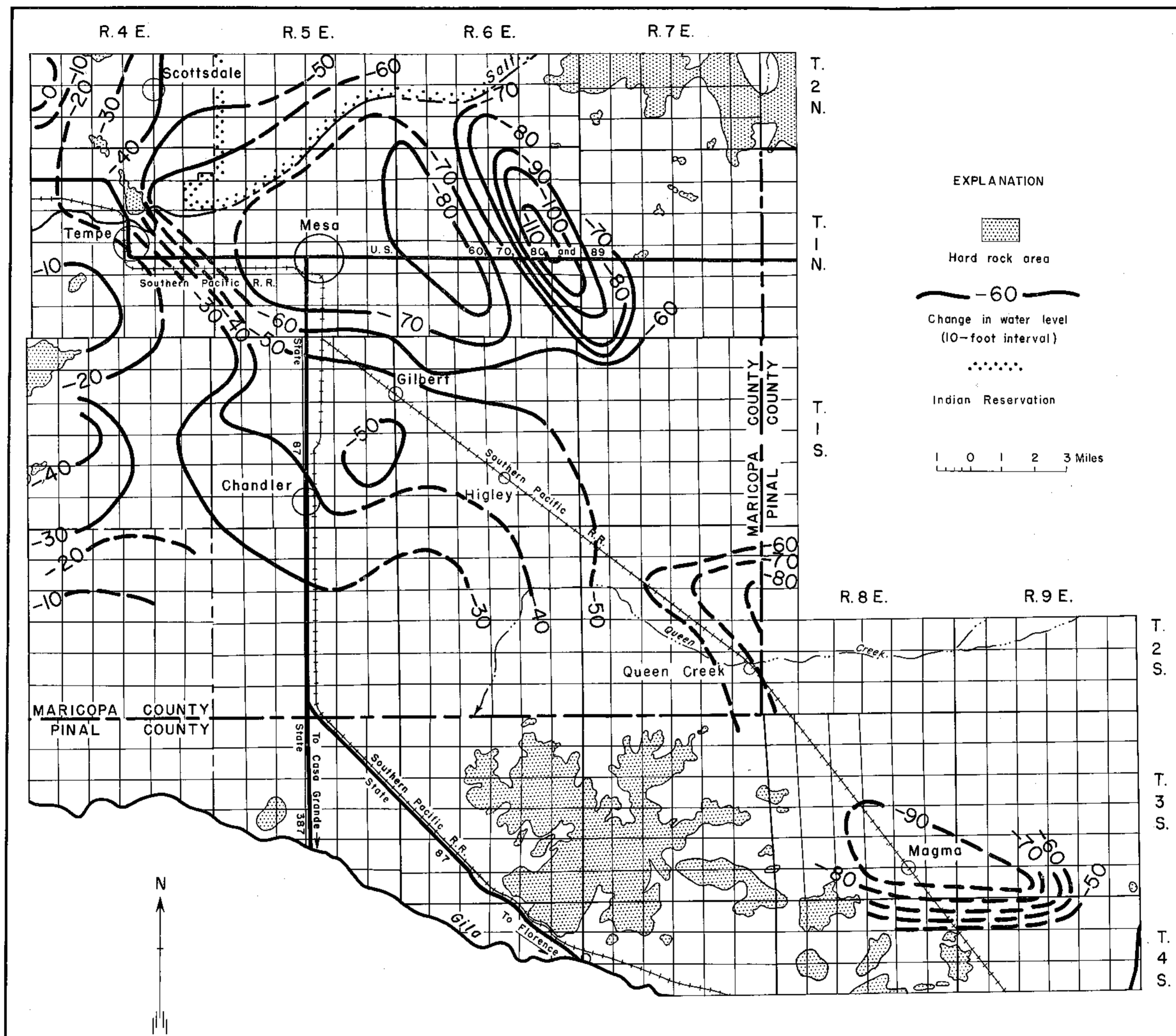


Figure 12.-- Change in ground-water level from spring 1950 to spring 1956 in Queen Creek-Higley-Gilbert and Tempe-Mesa-Chandler areas, Maricopa and Pinal Counties, Ariz.

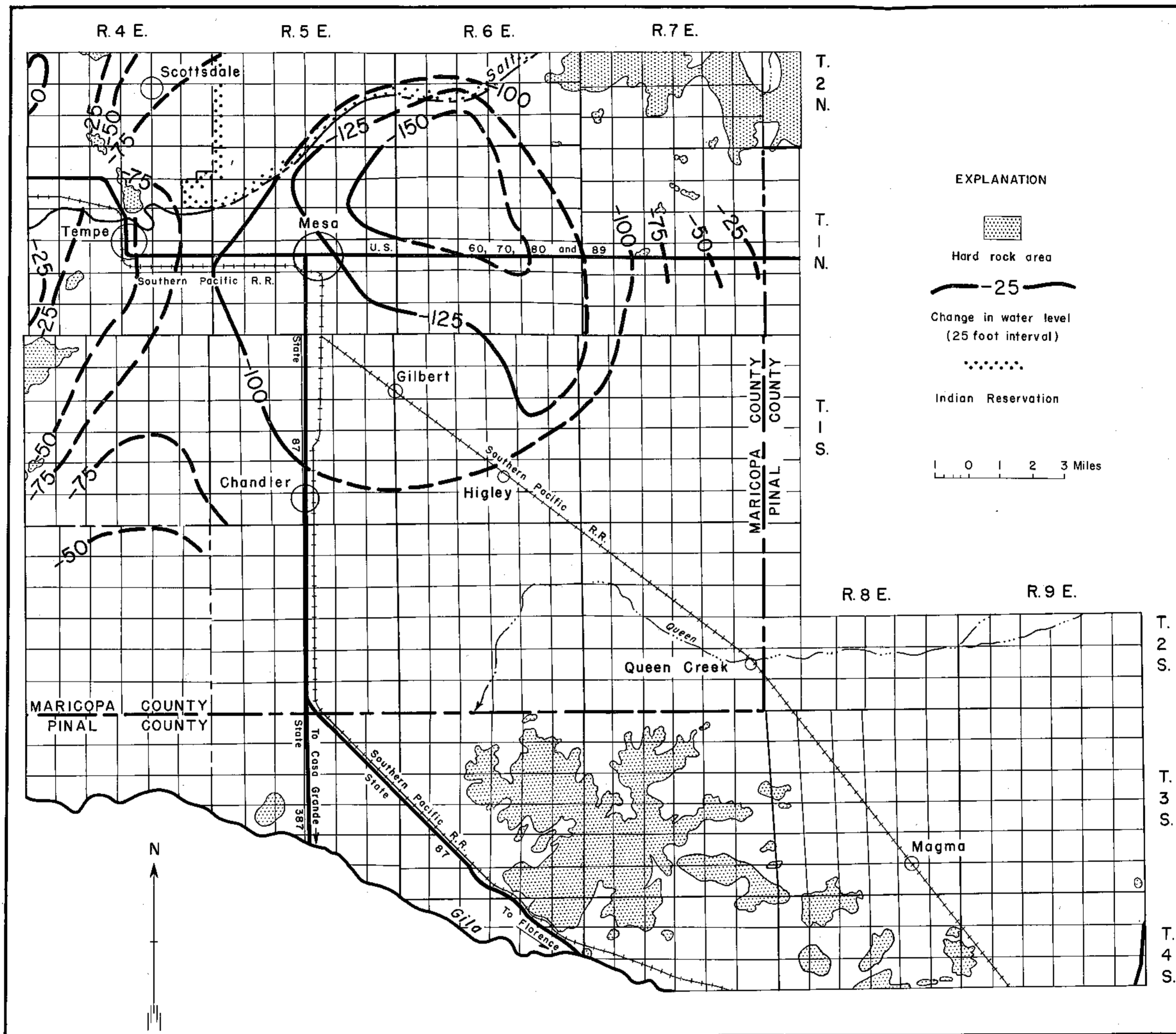


Figure 13.—Change in ground-water level from spring 1942 to spring 1956 in Queen Creek—Higley—Gilbert and Tempe—Mesa—Chandler areas, Maricopa and Pinal Counties, Ariz.

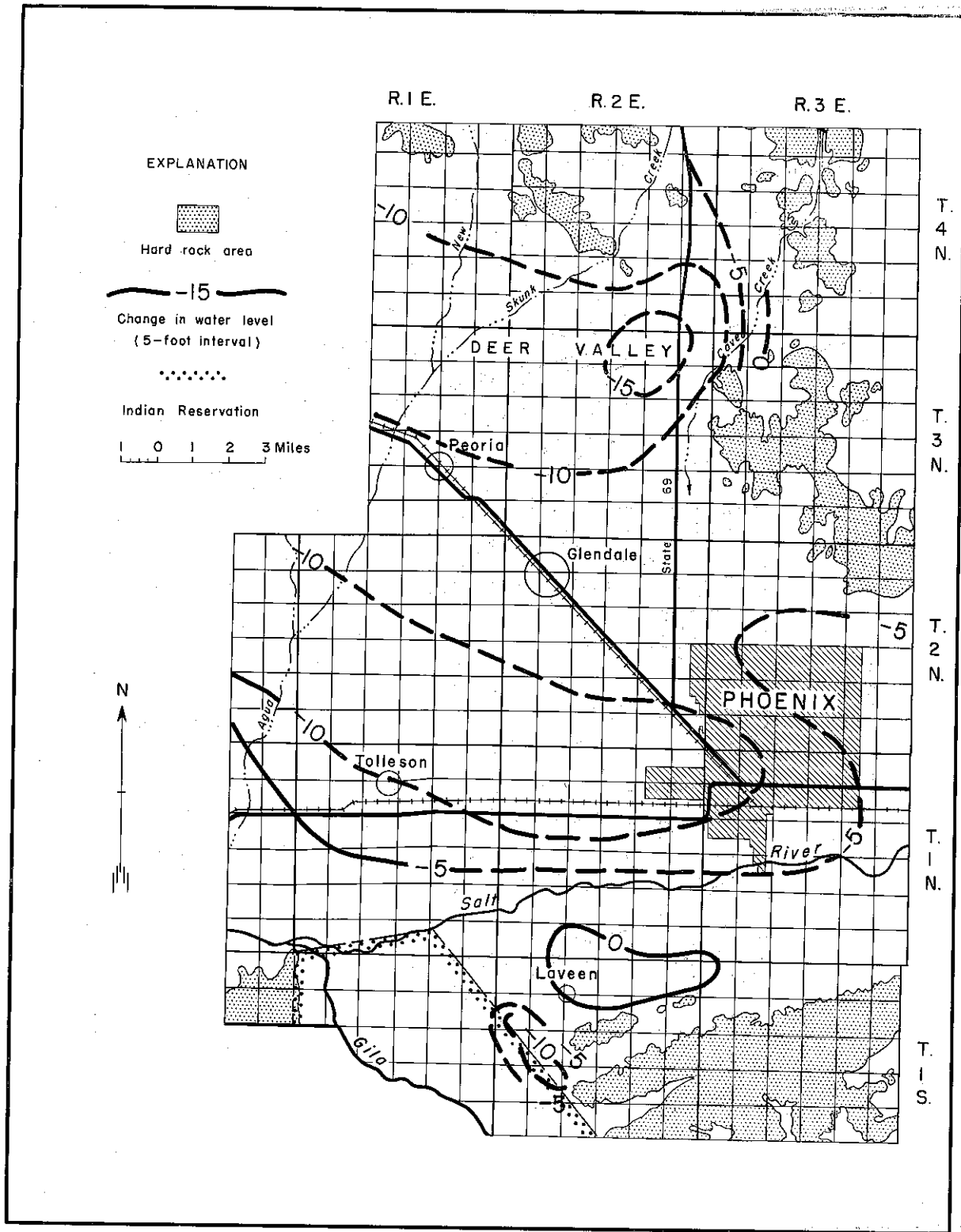


Figure 14.--Change in ground-water level from spring 1955 to spring 1956 in Phoenix-Glendale-Tolleson area, Maricopa County, Ariz.



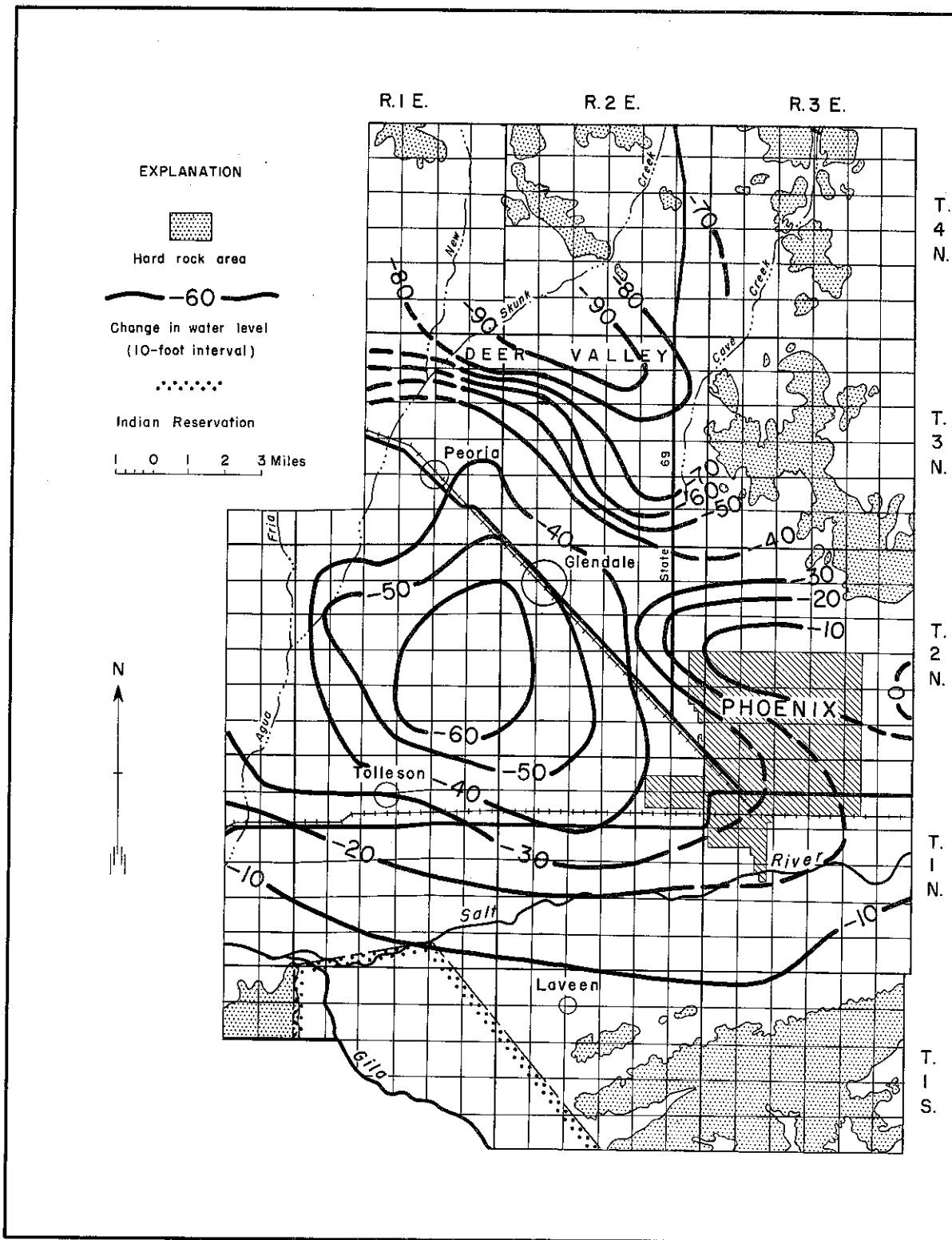


Figure 15.--Change in ground-water level from spring 1950 to spring 1956 in Phoenix - Glendale - Tolleson area, Maricopa County, Ariz.

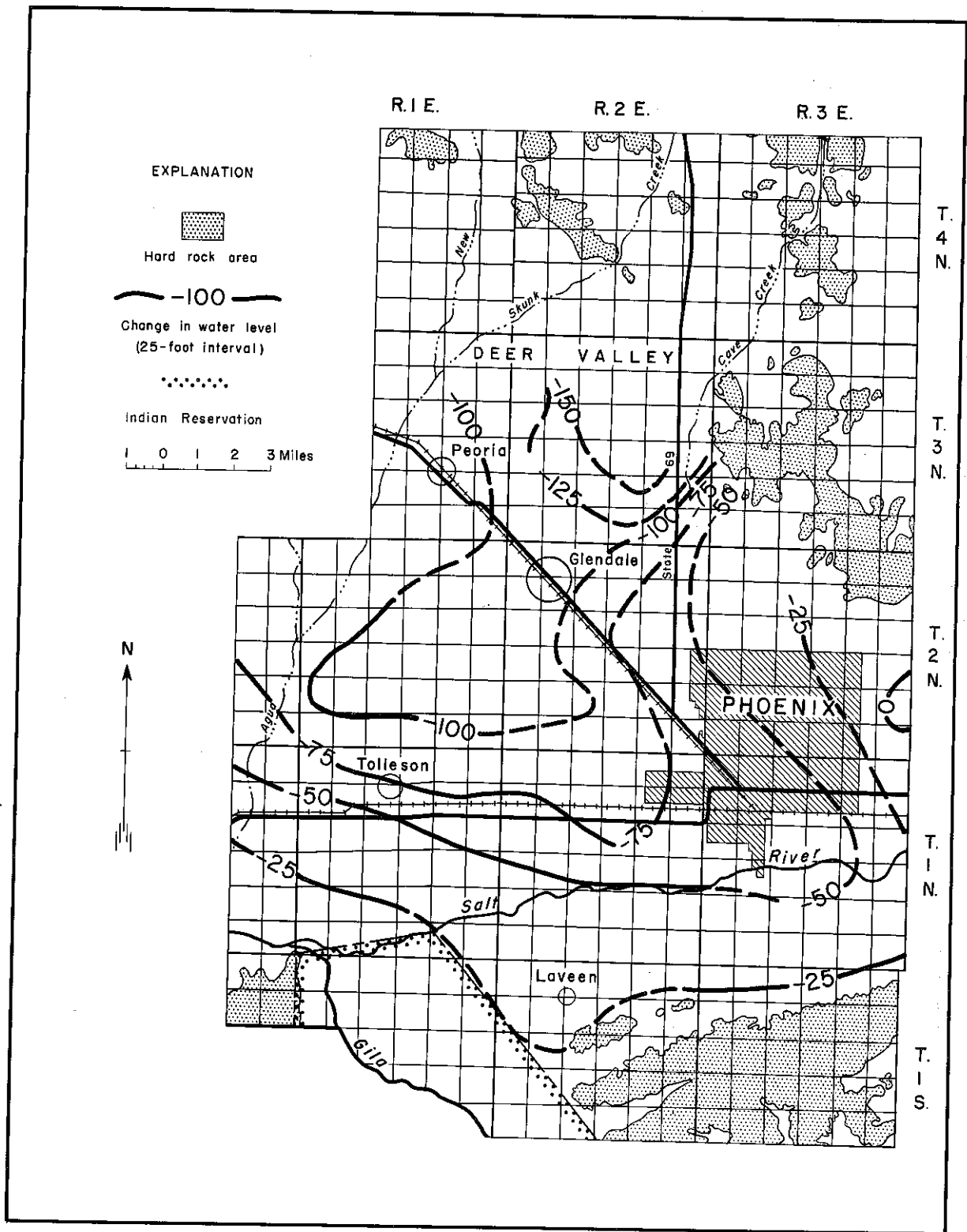


Figure 16.--Change in ground-water level from spring 1942 to spring 1956 in Phoenix - Glendale - Tolleson area, Maricopa County, Ariz.

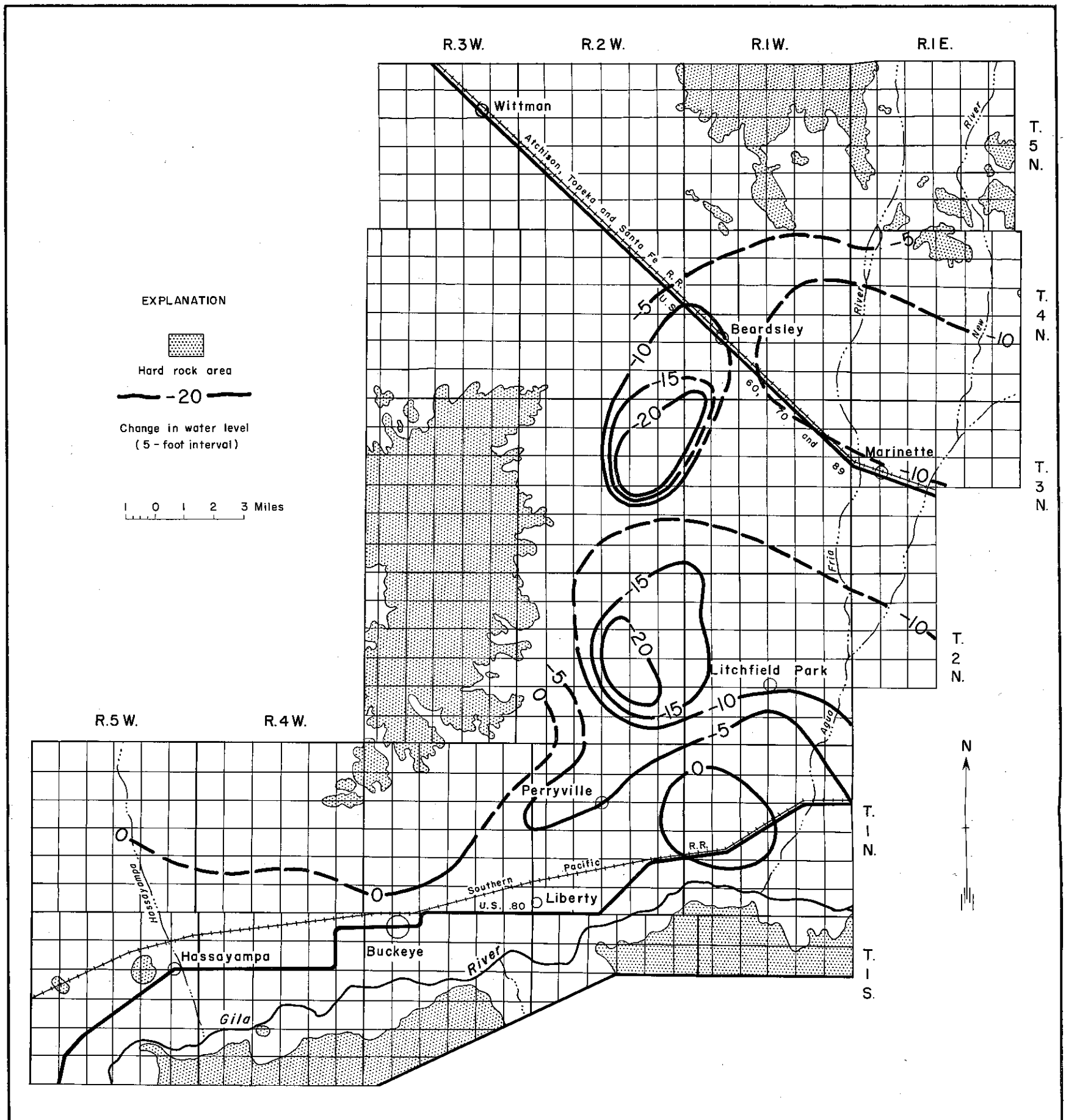


Figure 17.-- Change in ground-water level from spring 1955 to spring 1956 in Litchfield - Beardsley - Marinette and Liberty - Buckeye - Hassayampa areas, Maricopa County, Ariz.

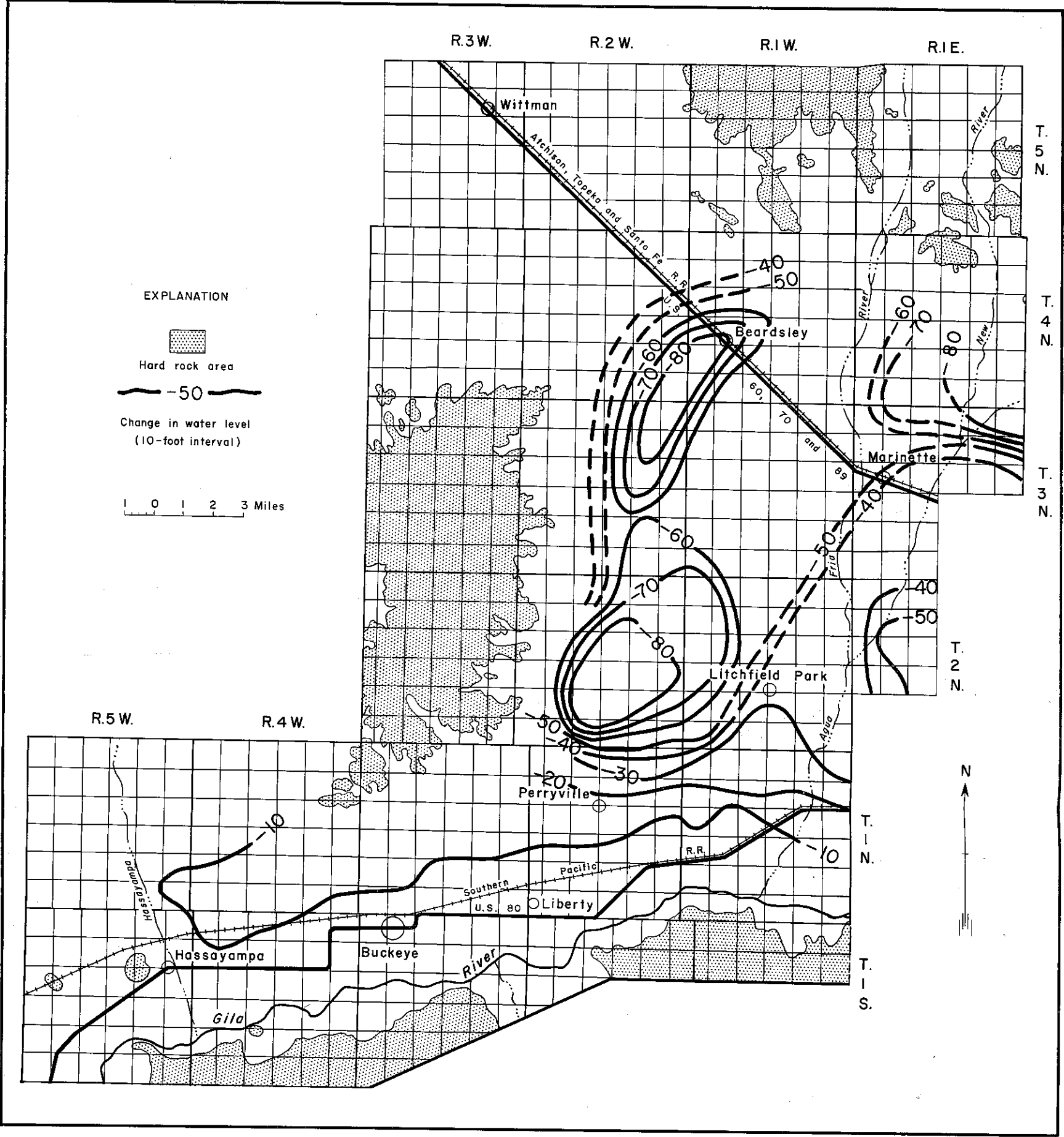


Figure 18.-- Change in ground-water level from spring 1950 to spring 1956 in Litchfield - Beardsley - Marinette and Liberty - Buckeye - Hassayampa areas, Maricopa County, Ariz.

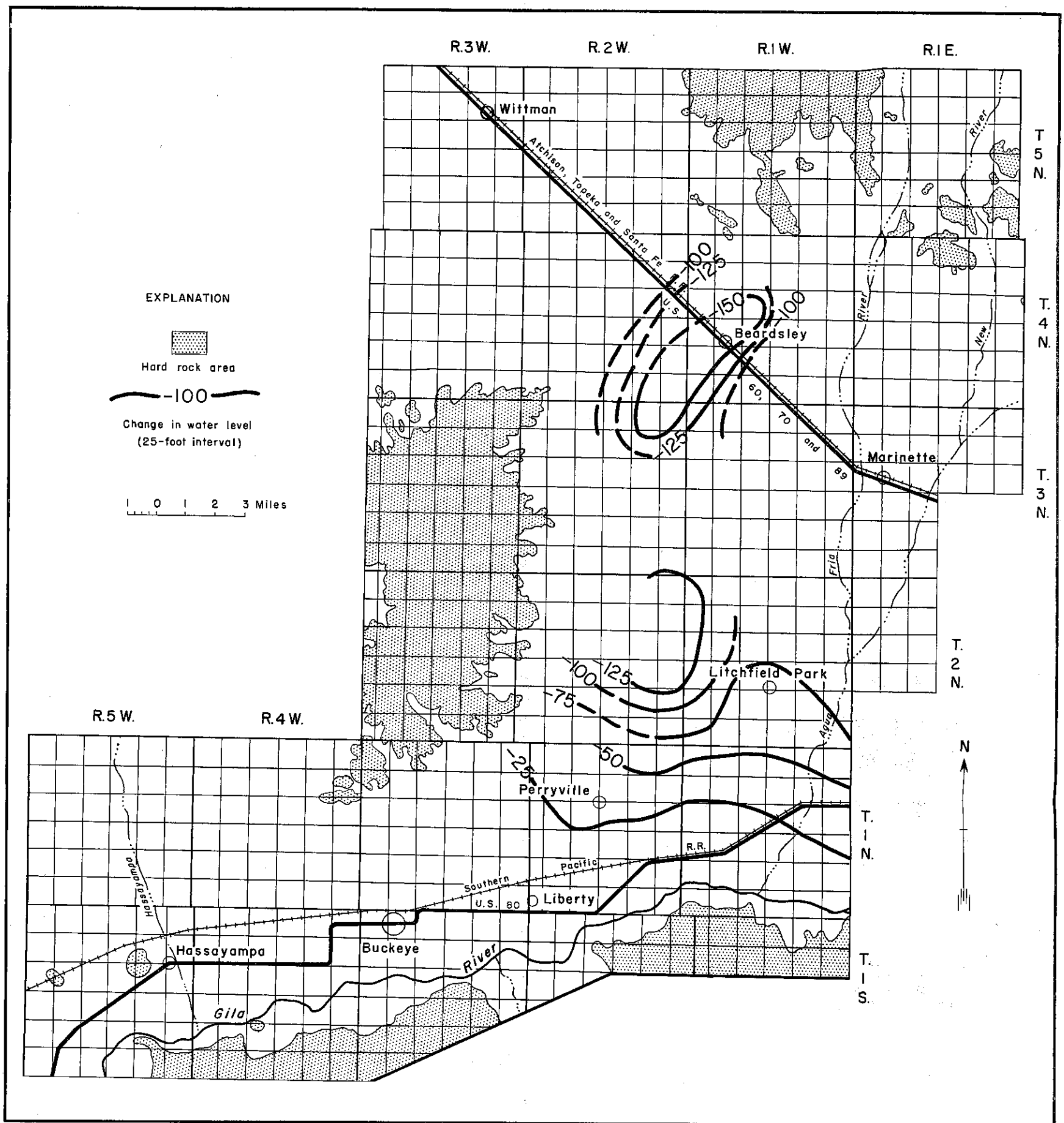


Figure 19.-- Change in ground-water level from spring 1942 to spring 1956 in Litchfield - Beardsley - Marinette and Liberty - Buckeye - Hassayampa areas, Maricopa County, Ariz.

The average decline in the Liberty-Buckeye-Hassayampa area amounted to about 1 foot in 1955. Water-table fluctuations in wells ranged from a rise of about 2 feet along the Hassayampa River to a decline of about 5 feet in the Liberty area during 1955 (fig. 17). Declines in this area for the period spring 1950 to spring 1956 ranged from less than 10 to about 20 feet (fig. 18) and from less than 25 to about 50 feet for the period spring 1942 to spring 1956 (fig. 19). Water levels in this area follow the same downward trend as in the other areas in the valley, but the rate of decline is much less, owing to the continuous recharge from irrigation water applied to cultivated lands upstream.

Pumpage in the Salt River valley during 1955 amounted to about 2,200,000 acre-feet, a decrease of 100,000 acre-feet from 1954 (table 1). Rainfall at Phoenix during 1955 amounted to 9.82 inches, about 37 percent greater than normal; 4.19 inches occurred in July, thus permitting a reduction in the pumping of ground water during that month.

In the Waterman Wash area, declines ranged from an average of about 10 feet in the cultivated area to no appreciable decline near Mobile. Pumpage amounted to about 40,000 acre-feet, an increase of about 10,000 acre-feet over 1954 (table 1).

The average water-table decline in the Harquahala Plains area amounted to about 1 foot. Pumpage in this area amounted to about 30,000 acre-feet, a decrease of about 3,000 acre-feet from 1954 (table 1). Rainfall at Harquahala Plains was about 4.76 inches in 1955.

Water-table declines in the Gila Bend area ranged from slightly less than 2 feet west and northwest of Gila Bend to about 10 feet in the Rainbow Valley area north of Gila Bend. Additional wells were drilled in this vicinity to augment the supply of water being pumped into a canal for transportation on the surface to irrigate land west of Gila Bend. Pumpage in the Gila Bend and Rainbow Valley areas amounted to about 140,000 acre-feet, slightly more than in 1954 (table 1). Precipitation at Gila Bend was 7.02 inches in 1955, about 27 percent greater than normal.

In the Dendora area, recharge from flood flows in the Gila River resulted in a rise of about 2 feet in water levels during 1955. Pumpage amounted to about 6,000 acre-feet, about 1,000 acre-feet less than in 1954 (table 1).

Mohave County. --Water levels along the Big Sandy River indicated an average rise of less than 1 foot in 1955; wells north of Wikieup showed an average decline of about 2 feet. The overall average was a rise of less than half a foot. Precipitation at Wikieup was 8.80 inches, about 85 percent of normal.

In the Kingman area, there was no appreciable change in the stage of the water table during 1955. The precipitation for the year at Kingman was 7.25 inches, 72 percent of normal.

Navajo County. --Most of the wells measured in Navajo County derive water from the Coconino sandstone. Water levels in these wells showed only a small decline during 1955. Precipitation at Pinedale amounted to 15.41 inches in 1955, about 82 percent of normal.

Pima County. --Water-level fluctuations in Pima County are discussed separately as follows: (1) Avra-Marana area, (2) Tucson-Cortaro area, (3) Tucson area, (4) Tucson-Continental area, and (5) Rillito-Tanque Verde-Pantano area.

Figure 20 shows contours of the change in water level in the Avra-Marana area for 1955. Fluctuations in water levels in this area ranged from a rise of about 1 foot to a decline of about 7 feet during 1955, averaging slightly more than 5 feet of decline. In the southern part of the area, water levels declined about 1 foot, but there were a few small local rises. Well (D-15-10)35aaa (fig. 21), showed a decline of slightly less than 2 feet. Depths to water in the area ranged from about 175 to more than 300 feet. The shallower depths to water were measured in the downstream part of the area near the Pima-Pinal County line, and the greater depths in the southern part of the area in Tps. 14 and 15 S., R. 11 E., north of the Ajo Highway.

Fluctuations in water levels in the Tucson-Cortaro area ranged from a rise of slightly more than 2 feet to a decline of about 6 feet during 1955. Along the Santa Cruz River between Rillito Narrows and Cortaro, water levels in most wells rose during 1955. Well (D-12-12)16bad (fig. 21) showed no essential change in water level during 1955. Between Cortaro and the northern limits of greater Tucson, fluctuations in water levels ranged from no change to a decline of about 6 feet. The range in depth to water in the area was from about 70 to more than 100 feet.

Water levels in wells in the Tucson area fluctuated widely during 1955. In the City's well field in the northeastern part of Tucson, water levels showed an average decline of about  $2\frac{1}{2}$  feet. Water levels in wells in the Tucson "Southside" well field rose an average of slightly more than 7 feet during 1955. These averages were obtained from water-level data supplied by the City of Tucson. Well (D-15-13)2cca (fig. 21) showed a rise of about 9 feet for 1955. The range in depth to water was from less than 40 feet near the Santa Cruz River to about 160 feet near the eastern city limits.

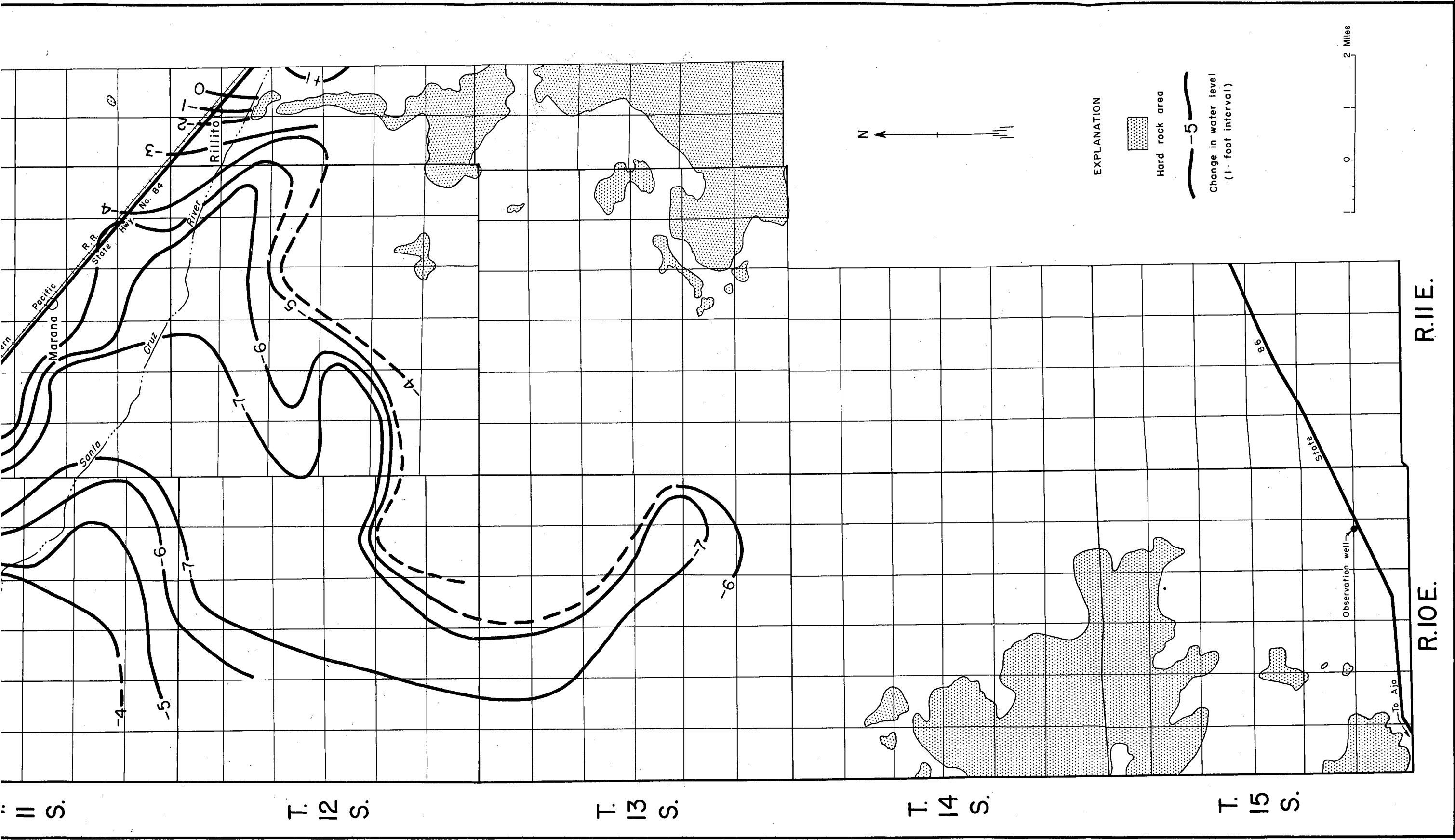


Figure 20.-- Change in ground-water level from spring 1955 to spring 1956 in Avra-Marana area, Pima County, Ariz.

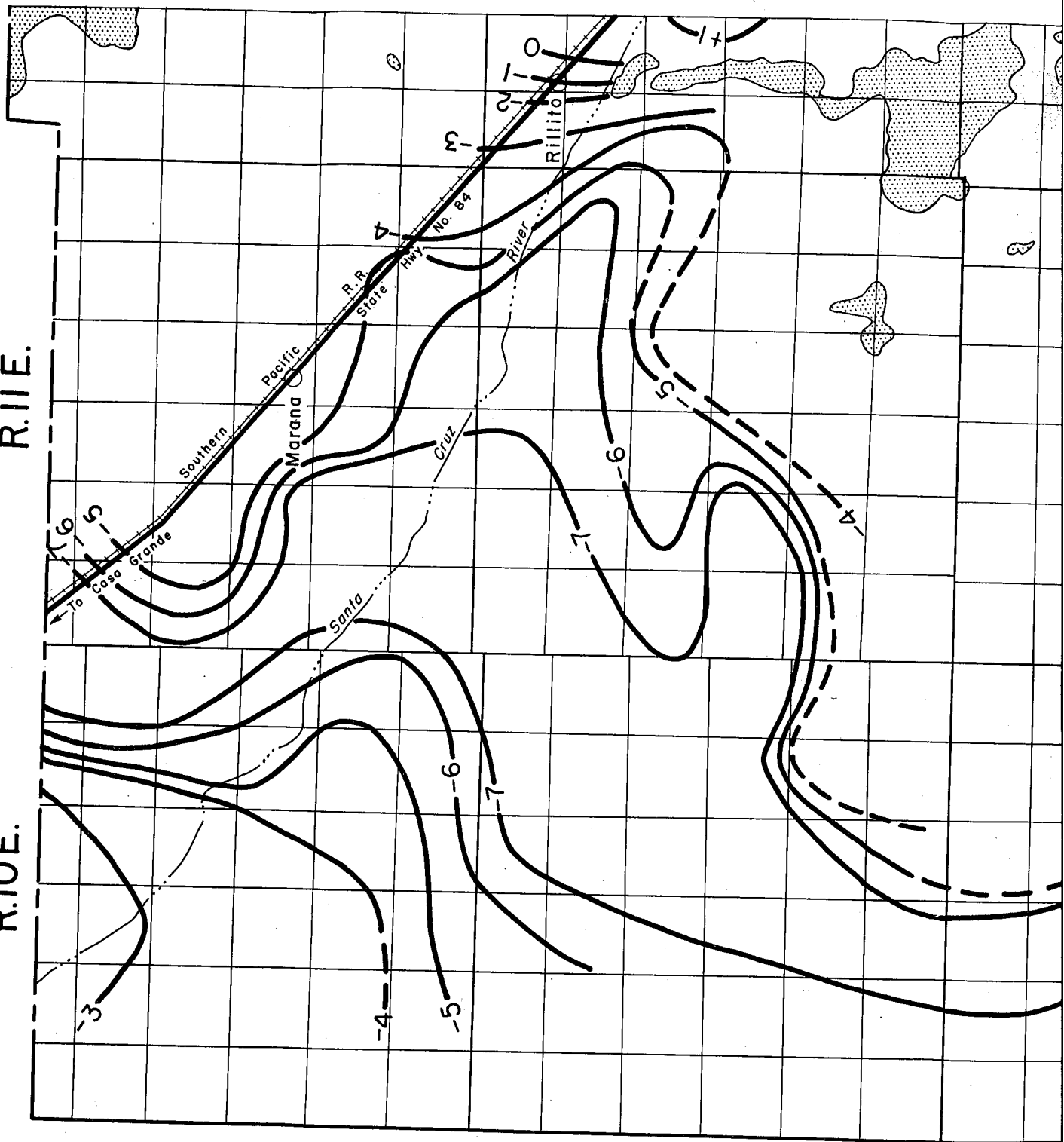


R. 11 E.

R. 10 E.

T. 11 S.

T. 12 S.



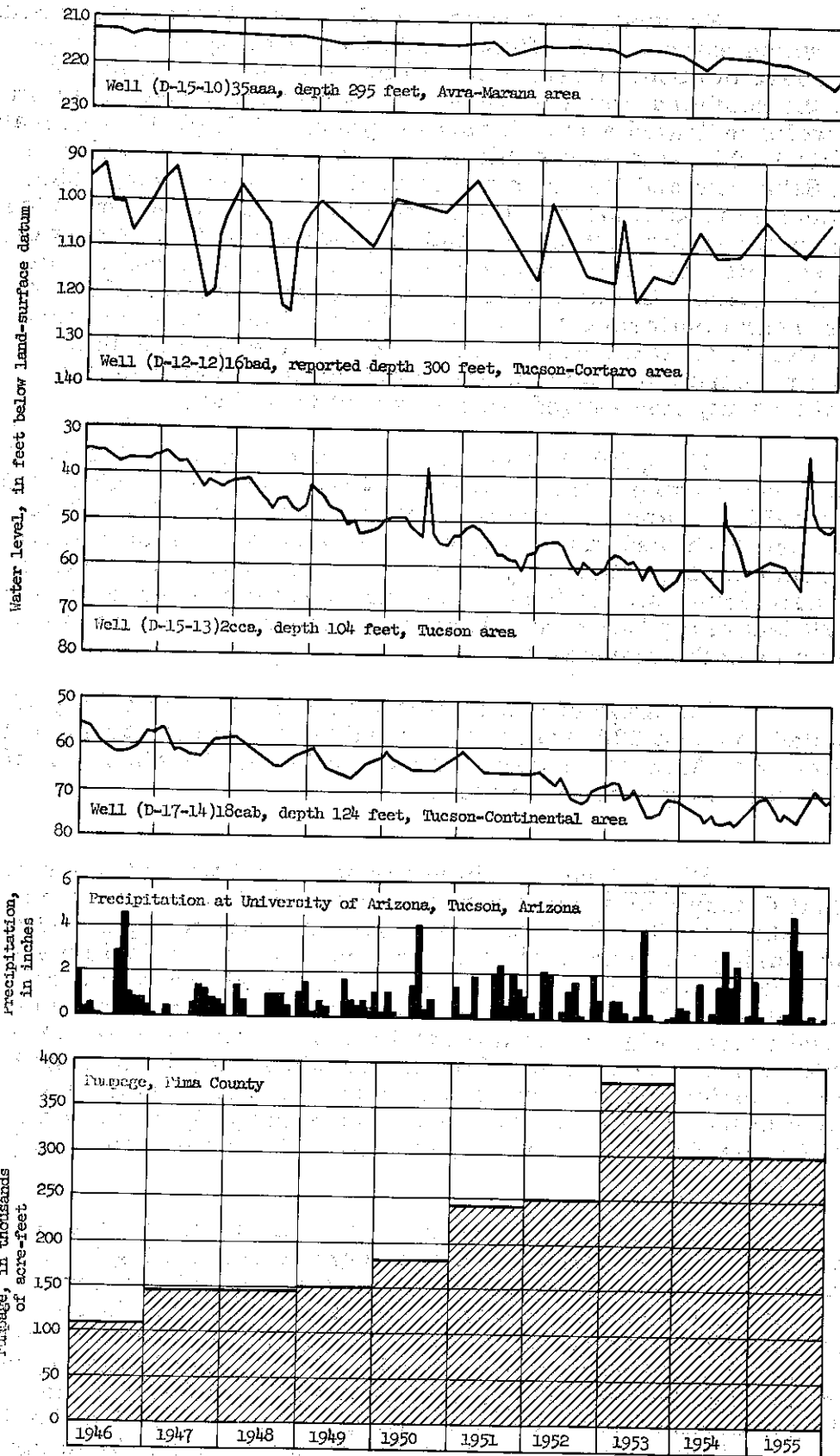


Figure 21.--Water levels in wells in the Avra-Marana, Tucson-Cortaro, Tucson, and Tucson-Continental areas, precipitation at Tucson, and pumpage, Pima County.

Fluctuations in water levels in the Tucson-Continental area, which extends to the Pima-Santa Cruz County line, ranged from a rise of about 10 feet to a decline of about 10 feet in 1955. From the southern limits of Tucson to Sahuarita, water levels in most wells indicated a rise during the year. Well (D-17-14)18cab (fig. 21) in this area shows this trend. Water levels in wells between Sahuarita and Continental declined somewhat during 1955. This decline is attributed to the more or less continuous pumping to supply water for both winter and summer crops in this part of the area. Between Continental and the Pima-Santa Cruz County line, fluctuations in water levels ranged from a decline of about 10 feet near Continental to a rise of about 7 feet near the county line. Depths to water ranged from about 40 feet just south of Tucson to more than 100 feet near Continental. Water levels near the county line ranged from about 30 to 50 feet.

Along Rillito Creek, water levels in wells indicated fluctuations ranging from a decline of 2 feet to a rise of about 1 foot during 1955. Changes in water levels in most wells along Tanque Verde Creek showed rises ranging from less than 1 foot to more than 5 feet during 1955. Slight rises in water levels were measured also along Pantano Wash. Depths to water ranged from less than 20 feet along Rillito and Tanque Verde Creeks to more than 250 feet near the mountains.

Pumpage of ground water in Pima County during 1955 amounted to about 300,000 acre-feet (table 1). Precipitation at the University of Arizona, Tucson, amounted to 10.93 inches in 1955, about 6 percent greater than normal.

Pinal County. -- Pumpage of ground water for irrigation in Pinal County continued to cause a decline in the water table during 1955. About 1,200,000 acre-feet of ground water was pumped in the county during the year (table 1). The cumulative net decline shown by the hydrographs for the three major irrigated areas in Pinal County in figure 22 are based on water-level measurements in several hundred wells. Figures 23 through 28 show contours of the change in water level in these areas for the periods spring 1955 to spring 1956 and spring 1951 to spring 1956 respectively. Water-level fluctuations in the three areas are discussed separately as follows: (1) Casa Grande-Florence area, (2) Maricopa-Stanfield area, and (3) Eloy area.

Water levels in wells in the Casa Grande-Florence area indicated an average decline of nearly 6 feet during 1955 and an average of about 25 feet for the period spring 1951 to spring 1956. Local declines of nearly 20 feet were measured in the heavily pumped sections during 1955 (fig. 23). Figure 24 shows that declines of as much as 50 feet were measured in some areas in the 5-year period spring 1951 to spring 1956. Between Casa Grande and Coolidge, declines in water levels ranged from 5 to 15 feet for 1955 (fig. 23) and from 10 to 50 feet for the period spring 1951 to spring 1956 (fig. 24). The range in depth to water in the Casa Grande-

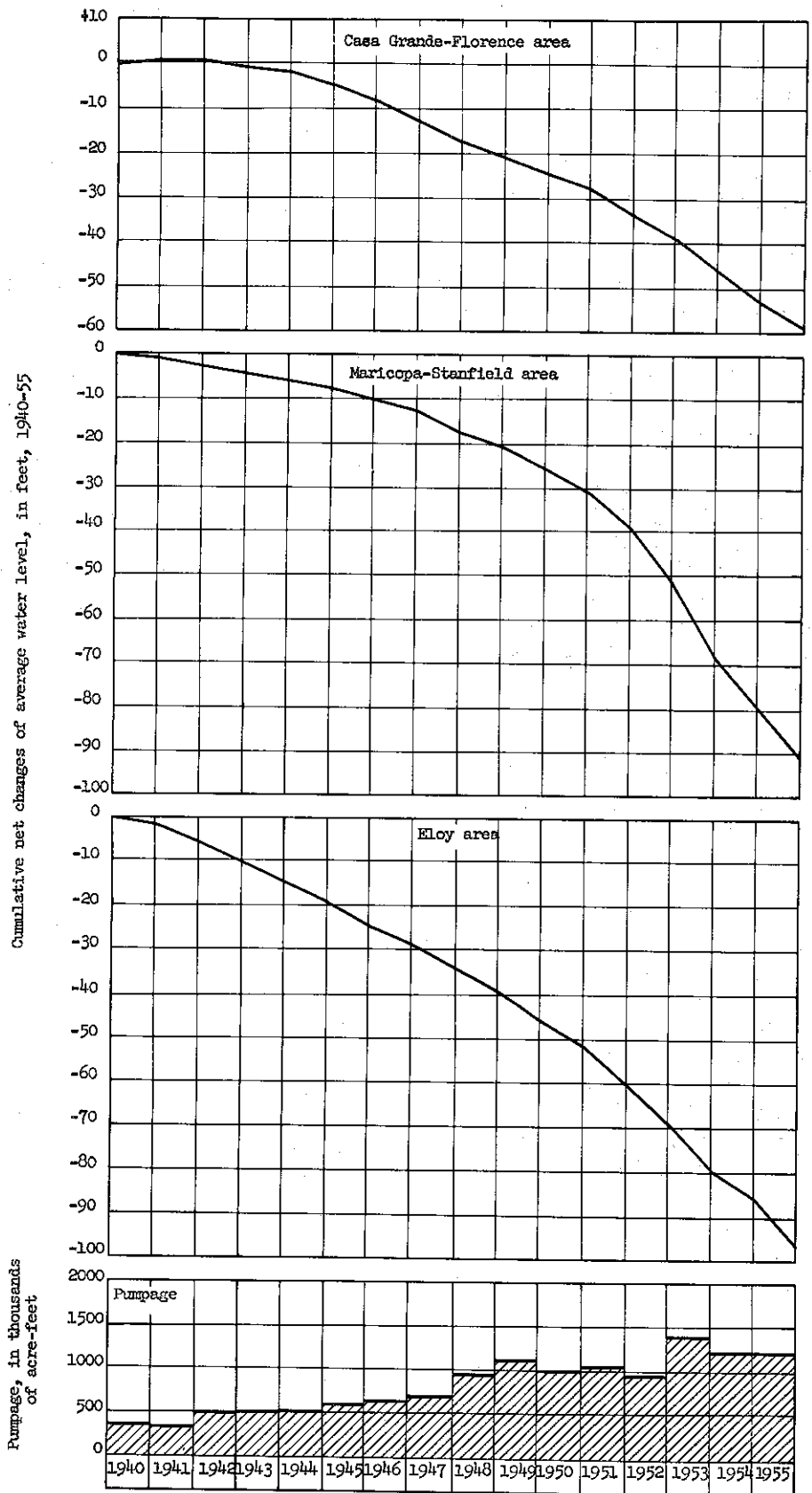


Figure 22.--Cumulative net changes of average water level and pumpage in portions of the Santa Cruz Basin within Pinal County.

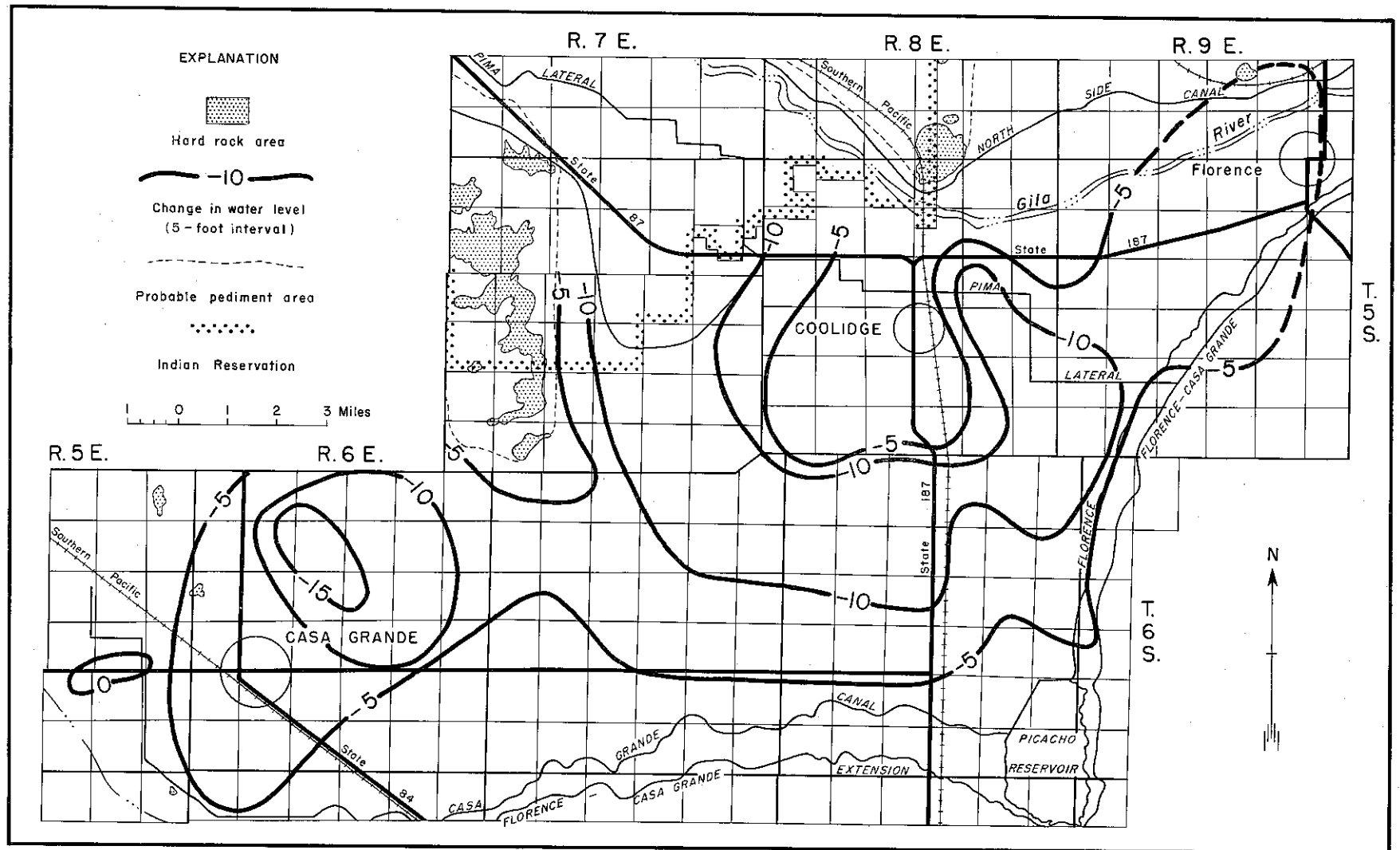


Figure 23.-- Change in ground-water level from spring 1955 to spring 1956 in Casa Grande - Florence area, Pinal County, Ariz.

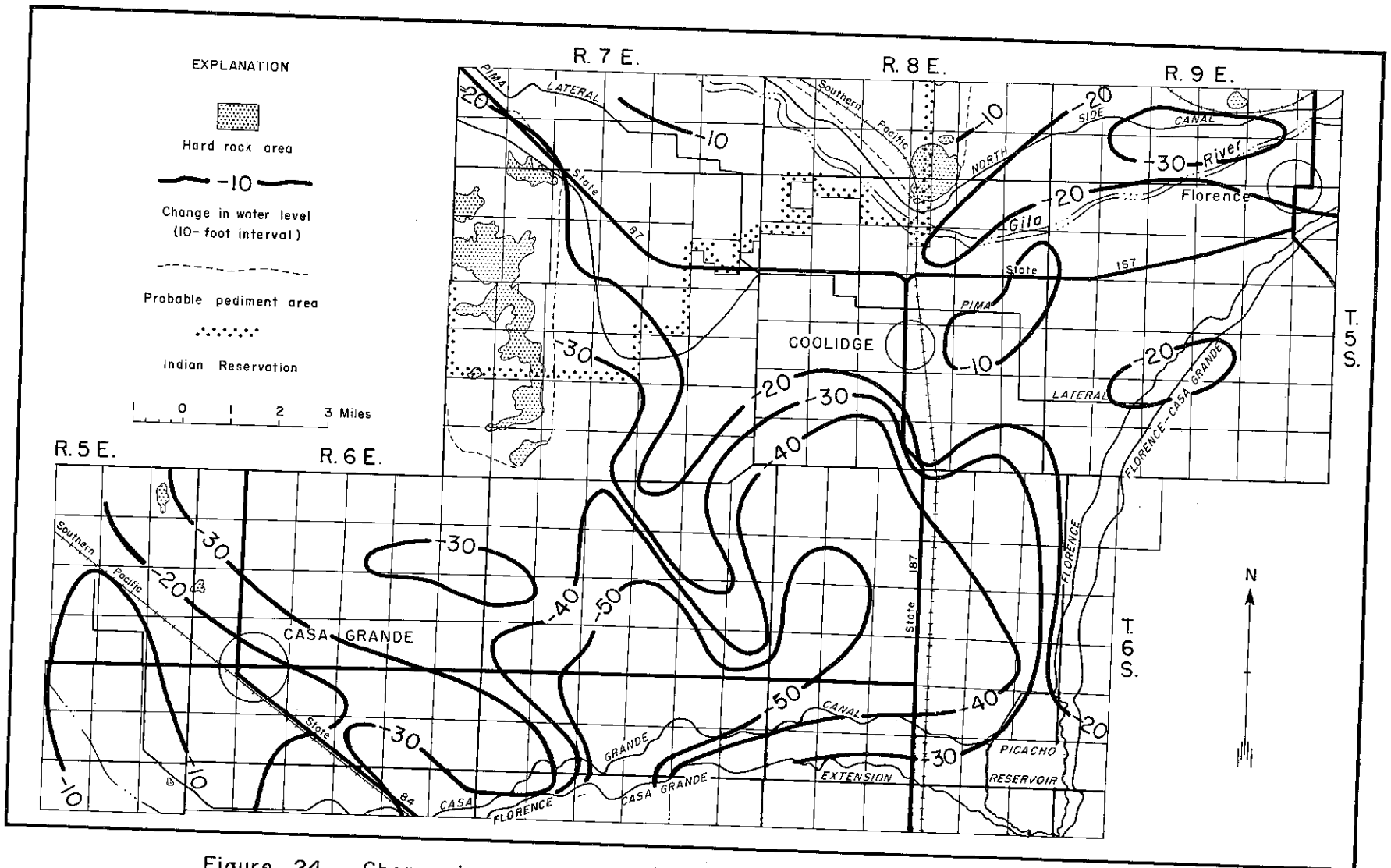


Figure 24.-- Change in ground-water level from spring 1951 to spring 1956 in Casa Grande-Florence area, Pinal County, Ariz.

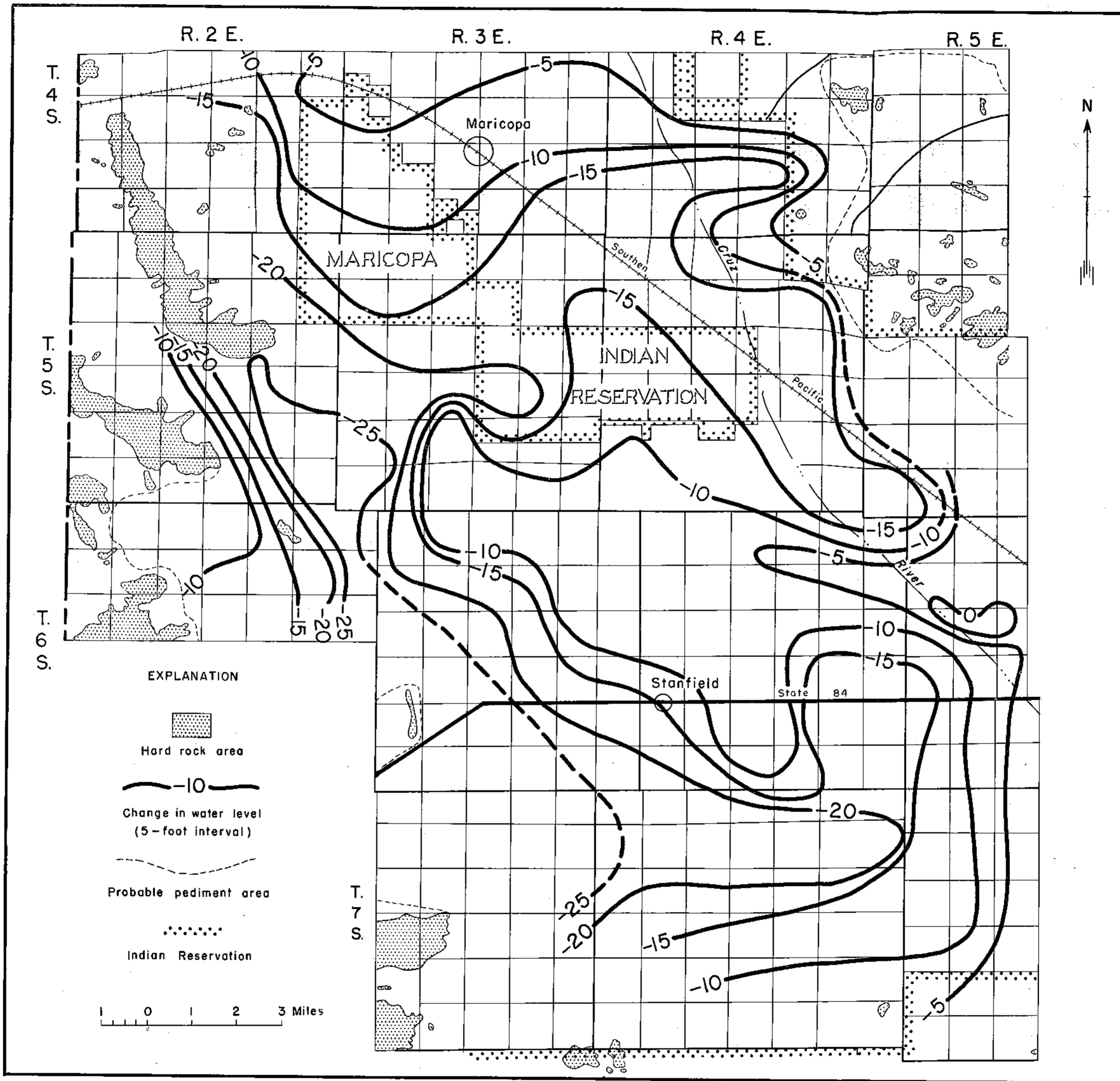


Figure 25.-- Change in ground-water level from spring 1955 to spring 1956 in Maricopa-Stanfield area, Pinal County, Ariz.

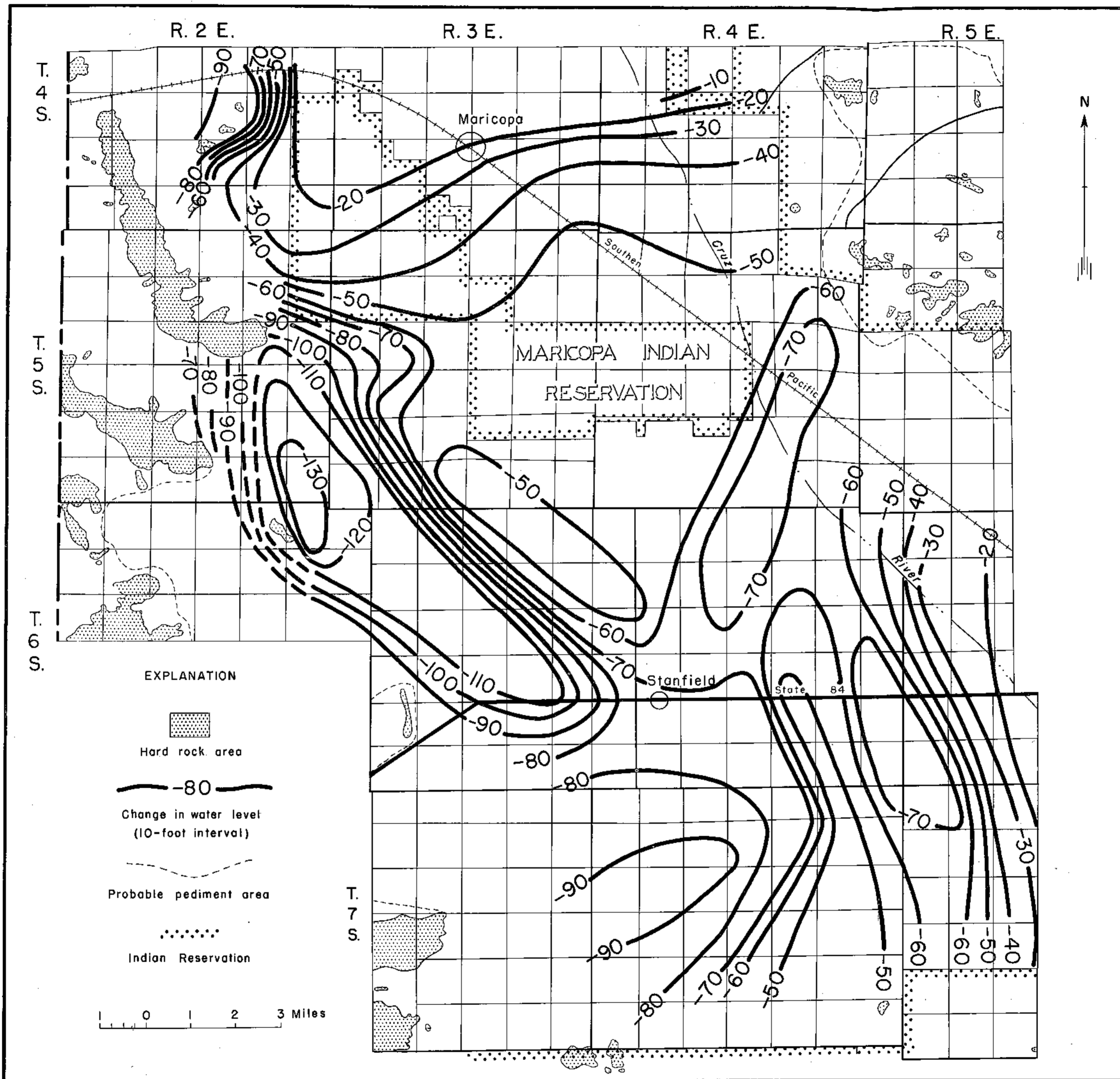


Figure 26.-- Change in ground-water level from spring 1951 to spring 1956 in Maricopa-Stanfield area, Pinal County, Ariz.



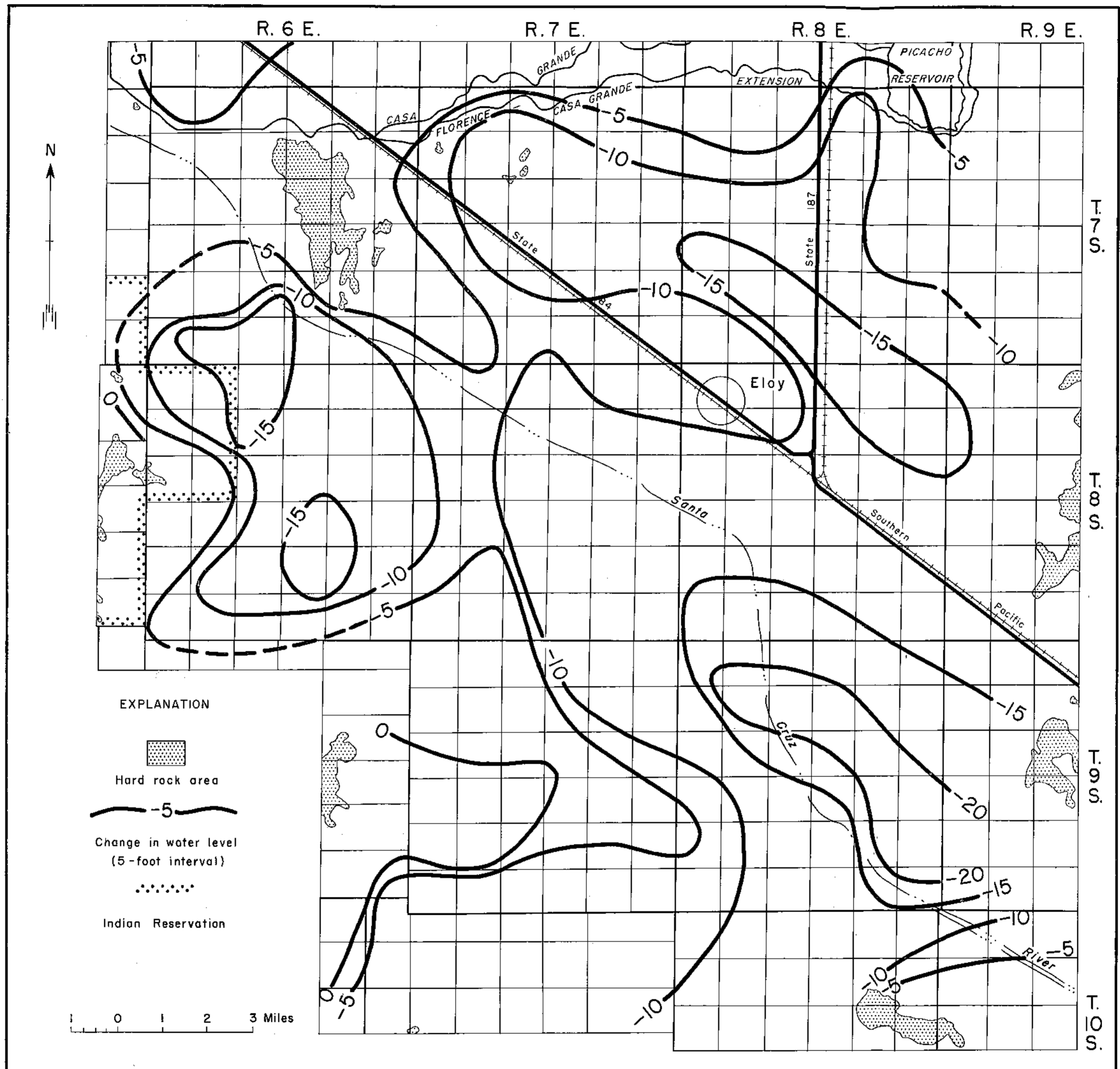


Figure 27.-- Change in ground-water level from spring 1955 to spring 1956 in Eloy area, Pinal County, Ariz.

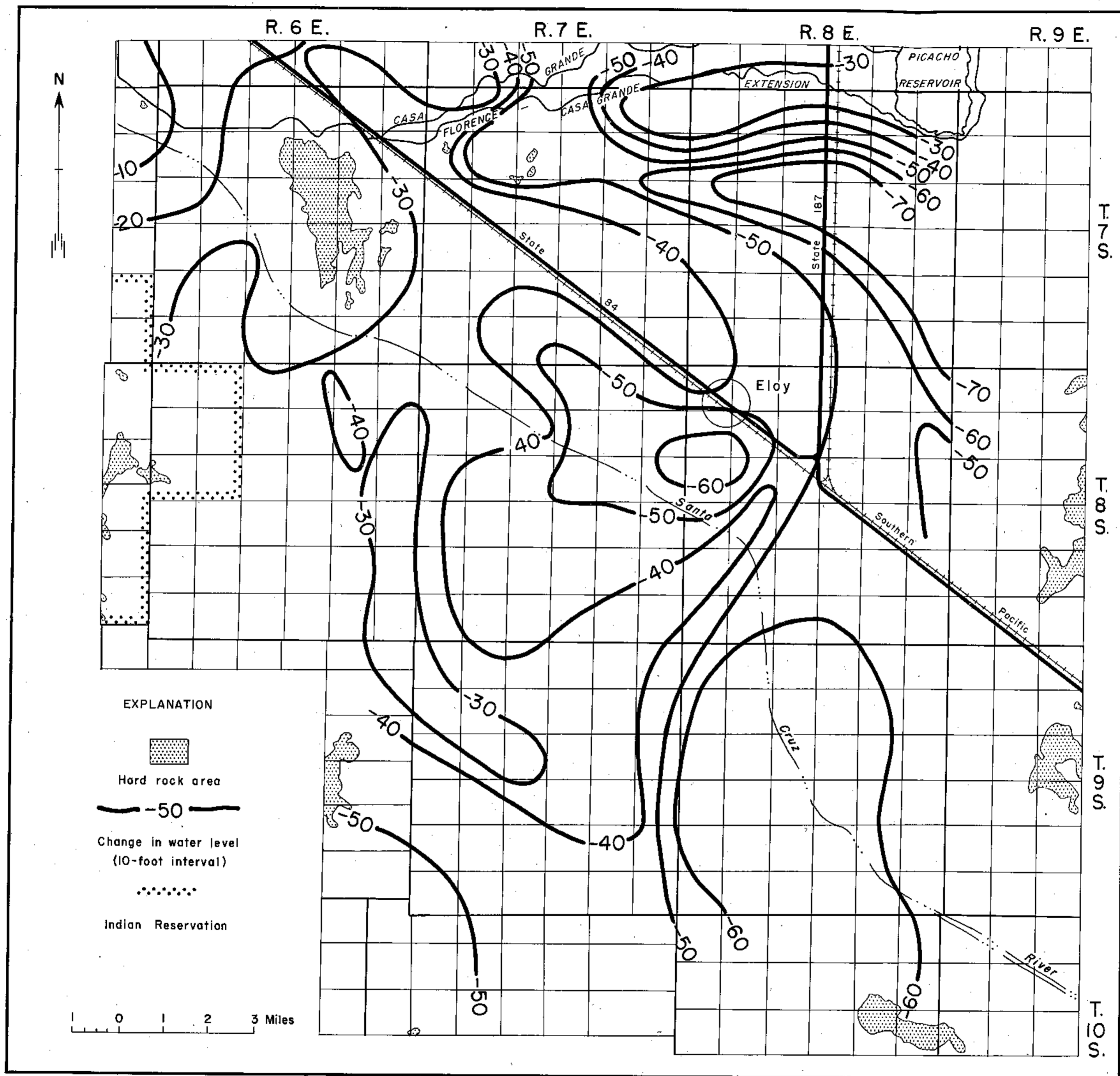


Figure 28.--Change in ground-water level from spring 1951 to spring 1956  
in Eloy area, Pinal County, Ariz.

Florence area for 1955 was from about 50 feet northeast of Casa Grande to about 175 feet near the eastern edge of the irrigated area. Precipitation at Casa Grande was 8.42 inches for 1955, nearly 8 percent greater than normal.

In the Maricopa-Stanfield area, the average decline in water level amounted to about 12 feet for 1955 and about 65 feet for the period spring 1951 to spring 1956. Declines in water levels for 1955 ranged from no decline in an area about 1 mile south of the Southern Pacific Railroad and about 4 miles northwest of Casa Grande to as much as 25 feet near the mountains south of the Maricopa Indian Reservation (fig. 25). For the 5-year period spring 1951 to spring 1956, water-table declines in the Maricopa-Stanfield area ranged from about 10 to 130 feet (fig. 26). Depths to water for 1955 ranged from about 50 feet near the northern boundary of the Maricopa Indian Reservation to about 300 feet near the mountains on the western edge of the area and as much as 400 feet in a few wells at the southwestern edge of the irrigated area. Precipitation at Maricopa is estimated to have been 7.60 inches in 1955.

Water levels in wells in the Eloy area declined an average of nearly 11 feet during 1955 and an average of about 45 feet in the period spring 1951 to spring 1956. Declines in water levels ranged from zero to about 20 feet in the area for 1955 (fig. 27), and from about 10 to about 70 feet for the 5-year period spring 1951 to spring 1956 (fig. 28). At the boundary of the area about 6 miles north of Eloy, water levels indicated an average decline of about 5 feet for 1955 and about 30 feet for the period spring 1951 to spring 1956. Depths to water in the area for 1955 ranged from about 125 feet near the eastern boundary of the Papago Indian Reservation to about 275 feet south of the town of Eloy. Precipitation at Eloy was 8.69 inches during 1955.

Santa Cruz County. --Water levels in most wells in the Santa Cruz County part of the Santa Cruz River basin rose during 1955, though some local declines were measured. In the area between the Pima-Santa Cruz County line and Tubac, water levels showed fluctuations from a decline of nearly 5 feet to a rise of about 2 feet. From Tubac to Calabasas, the range in water-level fluctuation was from a decline of over 6 feet to a rise of nearly 19 feet. Well (D-22-13)35dcd (fig. 29) near Calabasas showed a rise of about 19 feet for the year. Between Calabasas and the International Boundary, fluctuations in water level ranged from a decline of less than half a foot to a rise of nearly 22 feet. Well (D-23-14)27baa (fig. 29) in this area showed a rise of about half a foot in 1955. The greatest rise in water level was measured at the junction of Sonoita Creek and the Santa Cruz River, where recharge caused marked fluctuations in water levels. A few miles downstream from the junction, declines in water levels were measured during 1955. Depths to water in this area ranged from 5 to 50 feet, averaging about 25 feet along the river. Ground water pumped for irrigation in Santa Cruz County amounted to about 20,000 acre-feet in 1955 (table 1). Precipitation at Nogales was 16.06 inches for 1955, about 1 percent greater than normal.

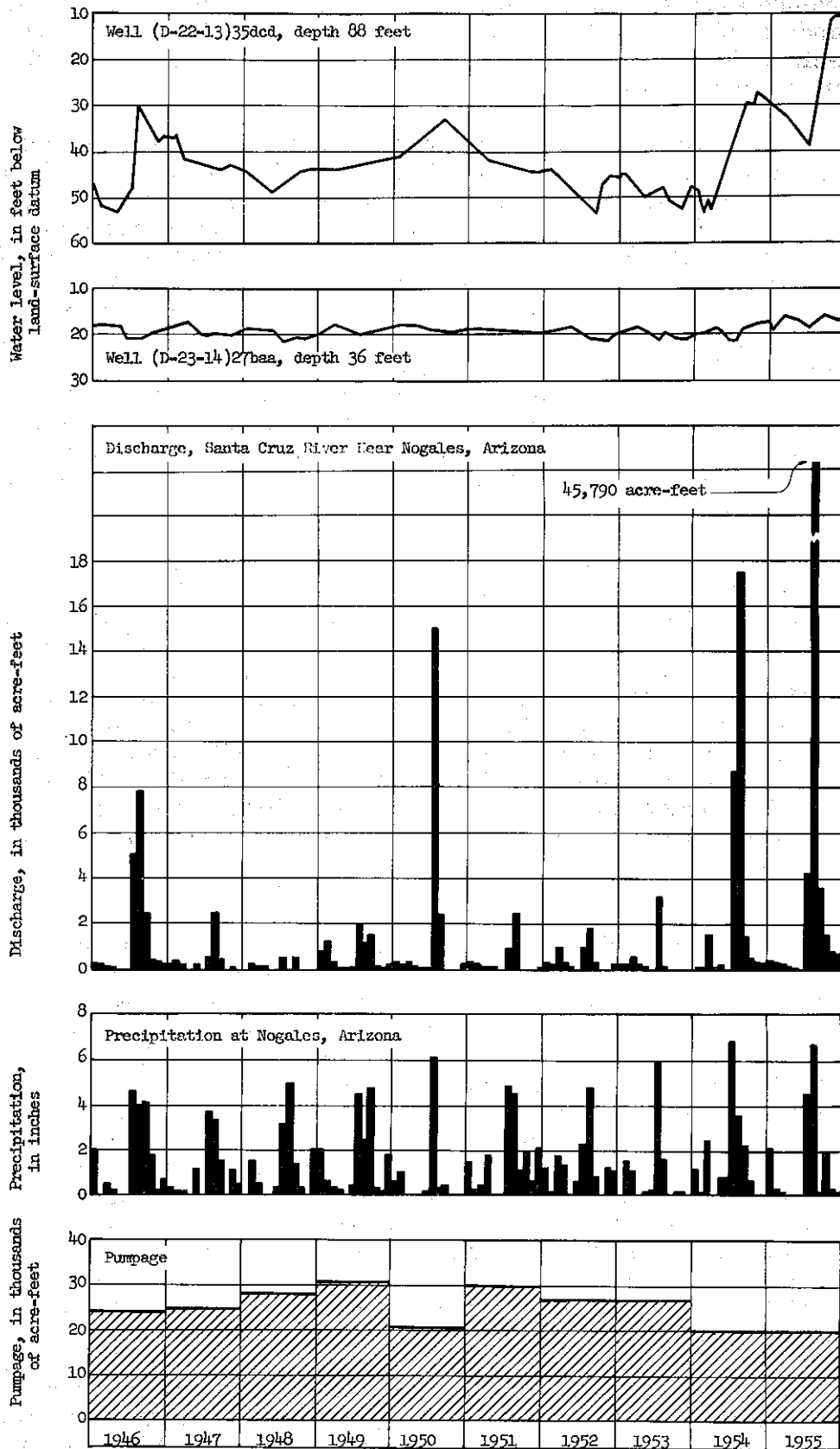


Figure 29.--Water Levels in wells in the Santa Cruz Valley, discharge of Santa Cruz near Nogales, precipitation at Nogales, and pumpage in Santa Cruz County.

Yavapai County. --Water levels in wells in the southern part of Chino Valley indicated an average decline of slightly more than half a foot in 1955, but those in the northern end of the valley showed a slight rise. In Peeples Valley, ground-water levels showed a rise of about 1 foot in 1955. There was little change in the stage of the water table in Skull Valley, but wells along Kirkland Creek showed a slight rise in the water table. Precipitation at Prescott in 1955 was 17.82 inches, about 89 percent of normal. Precipitation in Chino Valley amounted to 10.87 inches.

Yuma County. --In the Wellton-Mohawk area of southern Yuma County, water levels continued to rise during 1955, averaging about 3 feet. Well (C-8-16)28bda (fig. 30) in this area showed about 1 foot of rise during 1955. As more surface water was available for irrigation, fewer wells were pumped during 1955 than in previous years. Pumpage in the Wellton-Mohawk area during 1955 amounted to about 8,000 acre-feet, about 1,000 acre-feet less than in 1954 (table 1). Precipitation at Wellton in 1955 was 4.67 inches, about 4 percent greater than normal.

Water levels continued to rise in the south Gila Valley in 1955, averaging slightly less than 1 foot. There was a rise of slightly more than 2 feet in the Yuma Mesa area, as shown in the graph of well (C-9-22)17ddd (fig. 30). Pumpage in the south Gila Valley amounted to about 55,000 acre-feet in 1955 (table 1). Precipitation at Yuma in 1955 was 3.31 inches, about 91 percent of normal.

In the Palomas Plain area, water levels during 1955 indicated a decline, averaging slightly more than half a foot. However, in wells along the Gila River, water levels showed a rise of about 1 foot, owing to recharge from floodwaters. Pumpage in the Palomas Plain area in 1955 was about 25,000 acre-feet (table 1). Part of this area lies within Maricopa County but as most of the cultivated acreage is in Yuma County it is included in this section. Precipitation at Sentinel in 1955 was 6.39 inches.

Water levels in the two major agricultural areas of northern Yuma County, Ranegras Plain and McMullen Valley, indicated an average rise of about half a foot in 1955. Fluctuations in water level in these areas ranged from a rise of about 2 feet in wells adjacent to Bouse Wash to about half a foot of decline in wells near the cultivated area in Ranegras Plain. The latter condition is shown in the hydrograph of well (B-5-16)10ddd (fig. 30). Pumpage in northern Yuma County during 1955 amounted to about 25,000 acre-feet, slightly less than in 1954 (table 1). Precipitation at Salome in 1955 was 7.12 inches, about 93 percent of normal.

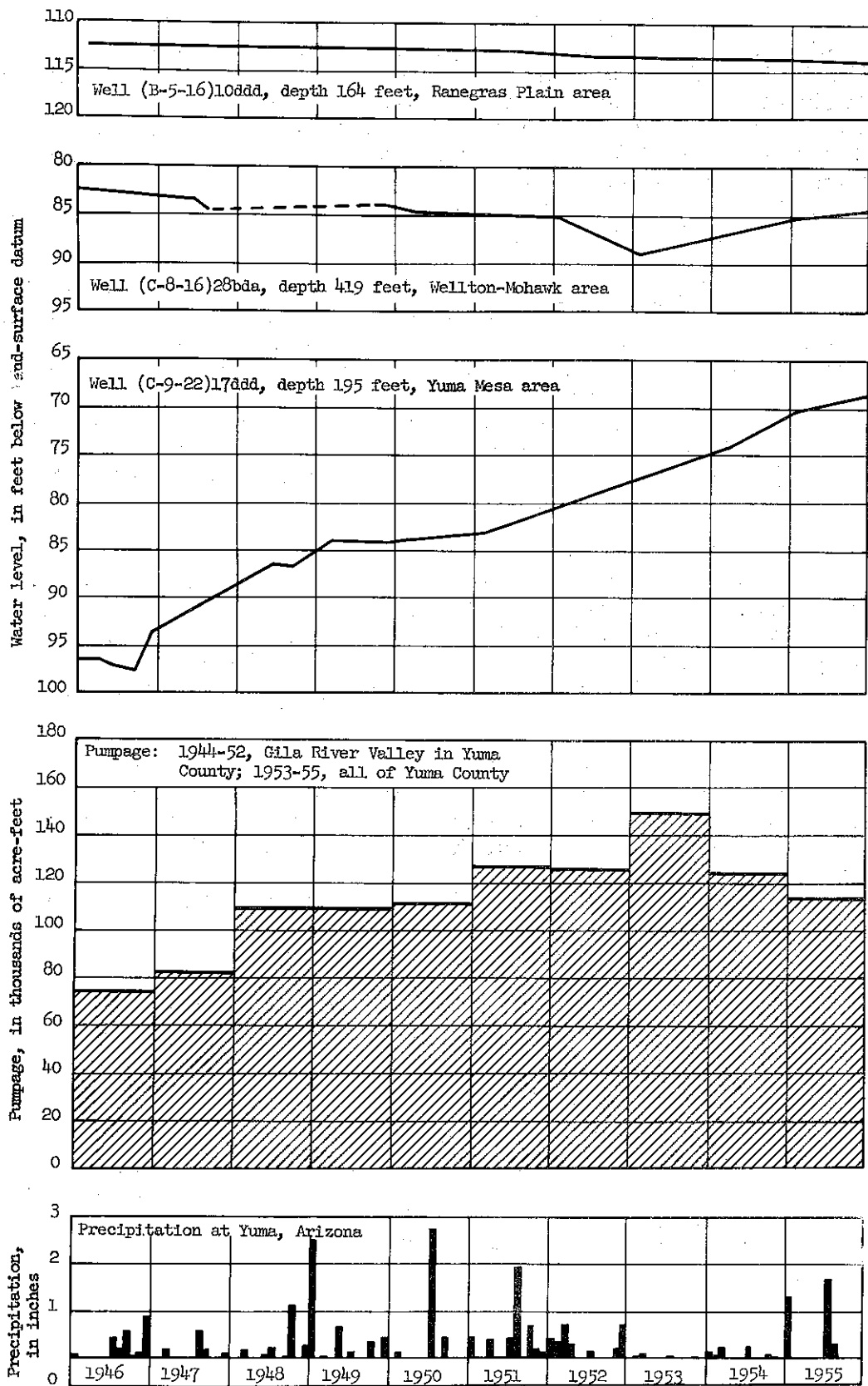


Figure 30.--Water levels in wells in Ranegras Plain, Wellton-Mohawk, and Yuma Mesa areas, pumpage in Lower Gila Valley, and precipitation at Yuma, Yuma County.

Well Descriptions and Water-Level Measurements

(Water levels are in feet below land-surface datum unless otherwise indicated.)

Apache County

(A-13-28)29ca. E. L. Johns. Drilled domestic water-table well in gravel, diameter 12 inches, depth 50 feet. Highest water level 8.43, Aug. 7, 1950; lowest 24.35, June 11, 1947. Records available 1944-55. Water level, 1955: June 28, 28.20, pumping; Oct. 26, 32.74, pumping.

Cochise County

(D-13-29)6ccc. A. R. Spikes. Drilled stock and irrigation artesian well in sand and gravel, diameter 6 inches, reported depth 835 feet. Land-surface datum is about 3,675 feet above msl. Highest water level 9.49, May 2, 1941; lowest 87.36, Aug. 18, 1954. Records available 1941-42, 1944, 1946-47, 1949-52, 1954-55. Water level, 1955: Feb. 2, 57.65.

(D-13-31)30cdc. Elmer Franklin. Drilled domestic water-table well in sand and gravel, diameter 4 inches, depth 72 feet. Land-surface datum is about 3,610 feet above msl. Highest water level 58.70, Nov. 2, 1949; lowest 70.08, July 1, 1955. Records available 1940-42, 1944, 1946-55. Water level, 1955: Feb. 2, 64.08; Mar. 21, 65.00; July 1, 70.08; Oct. 18, 62.01.

(D-14-23)36baa. Fay Proctor. Drilled domestic and stock water-table well in sand and gravel, diameter 6 inches, depth 50 feet. Land-surface datum is about 4,210 feet above msl. Highest water level 36.05, May 13, 1942; lowest 42.93, June 11, 1947. Records available 1942, 1944-55. Water level, 1955: Feb. 1, 41.46; Mar. 22, 41.20.

(D-14-25)6cac. E. T. Dunlap. Drilled domestic water-table well in sand and gravel, diameter 6 inches, depth 34 feet. Land-surface datum is about 4,166 feet above msl. Highest water level 9.80, Oct. 21, 1955; lowest 19.13, June 27, 1955. Records available 1942, 1944-55. Water level, 1955: Feb. 1, 18.00; Mar. 22, 18.33; June 27, 19.13; Oct. 21, 9.80.

(D-14-31)3ddd. A. G. Pierce. Drilled unused artesian well in sand and clay, diameter 8 inches, reported depth 400 feet. Land-surface datum is about 3,690 feet above msl. Highest water level 17.20, Apr. 24, 1942; lowest 60.20, Oct. 1, 1955. Records available 1941-42, 1946-55.

Daily highest water level, 1955  
(From recording gage)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	45.86	-	43.71	43.48	-	53.46	57.12	58.08	57.79	60.20	55.40	50.98
2	45.72	-	43.67	43.50	-	53.56	57.24	57.89	57.90	60.20	55.27	50.88
3	45.69	44.20	43.60	-	-	53.68	57.36	57.68	58.02	60.20	55.14	50.79
4	45.65	-	-	-	-	53.82	57.47	57.53	58.15	60.18	55.00	50.70
5	45.60	-	-	-	-	53.96	57.58	57.39	58.30	60.15	54.86	50.60
6	45.53	-	-	-	-	54.08	57.68	57.17	58.42	60.06	54.73	50.50
7	45.47	44.11	-	-	-	54.24	57.77	57.10	58.53	59.93	54.59	50.43
8	45.43	44.05	-	-	-	54.39	57.89	56.95	58.65	59.73	54.43	50.34
9	45.39	44.00	-	-	50.29	54.51	58.01	56.80	58.75	59.50	54.28	50.25
10	45.32	44.00	-	-	50.36	54.65	58.12	56.62	58.85	59.20	54.13	50.16
11	-	43.97	-	-	50.56	54.81	58.23	56.45	58.93	59.02	53.98	50.01
12	-	43.93	-	-	50.77	54.96	58.33	56.37	59.02	58.79	53.82	-
13	-	43.92	-	-	50.96	55.09	58.42	56.36	59.12	58.57	53.67	-
14	-	43.89	-	-	51.12	55.23	58.47	56.37	59.21	58.32	53.52	-
15	-	43.87	-	-	51.29	55.36	58.51	56.39	59.29	58.09	53.37	-
16	-	43.86	-	-	51.45	55.47	58.54	56.42	59.36	57.87	53.22	-
17	-	43.85	-	-	51.57	55.58	58.68	56.45	59.45	57.68	53.06	-
18	-	43.81	-	-	51.62	55.70	58.76	56.50	59.54	57.47	52.91	-
19	-	43.85	-	-	51.68	55.83	58.91	56.53	59.62	57.30	52.76	-
20	-	43.85	-	-	51.71	55.94	58.98	56.53	59.68	57.05	52.61	-
21	-	43.85	-	-	51.75	56.06	59.05	56.61	59.74	56.92	52.46	-
22	-	43.84	-	-	51.80	56.17	59.13	56.69	59.76	56.78	52.30	-
23	-	43.84	-	-	51.95	56.27	59.20	56.79	59.82	56.64	52.15	-
24	-	43.82	-	-	52.10	56.38	59.23	56.87	59.86	56.50	52.00	-
25	-	43.79	-	-	52.26	56.43	59.10	57.03	59.92	56.37	51.85	-
26	-	43.79	-	-	52.44	56.53	58.80	57.15	59.99	56.23	51.70	-
27	-	43.77	-	48.90	52.65	56.64	58.70	57.27	60.05	56.09	51.54	-
28	-	43.73	-	-	52.83	56.76	58.60	57.37	60.10	55.96	51.39	50.22
29	-	-	-	-	53.01	56.87	58.49	57.45	60.14	55.82	51.20	50.16
30	-	-	43.43	-	53.14	56.99	58.38	57.55	60.17	55.68	51.11	50.11
31	-	-	43.44	-	53.31	-	58.26	57.67	-	55.55	-	50.03

(D-16-20)34acd. L. A. Scott. Drilled domestic and stock water-table well in sand and gravel, diameter 6 inches, depth 98 feet. Highest water level 70.42, June 12, 1941; lowest 85.57, May 28, 1954. Records available 1941-42, 1944-55. Water level, 1955: Oct. 7, 83.29.



(D-16-25)16add. W. D. Wear. Drilled stock water-table well in sand and gravel, diameter 6 inches, depth 65 feet. Land-surface datum is about 4,190 feet above msl. Highest water level 33.99, June 7, 1944; lowest 42.27, Jan. 19, 1953. Records available 1942, 1944-55. Water level, 1955: Jan. 31, 39.88, pumping; Mar. 23, 40.53, pumping; June 28, 40.56, pumping; Oct. 20, 39.70, pumping.

(D-17-21)32bad. Boquillas Cattle Co. Drilled domestic and stock artesian well in sand and gravel, diameter 6 inches, reported depth 520 feet, cased to 500. Highest water level 16.92, Dec. 9, 1946; lowest 21.81, Oct. 4, 1955. Records available 1944-55. Water level, 1955: Oct. 4, 21.81.

(D-18-21)6aab. Walter Haymore. Drilled domestic water-table well in sand and gravel, diameter 4 inches, depth 60 feet. Highest water level 25.62, Mar. 30, 1946; lowest 39.68, May 28, 1954. Records available 1944-55. Water level, 1955: Oct. 4, 33.14.

(D-18-26)28aaa. Frank Geers. Drilled stock water-table well in sand and gravel, diameter 6 inches, depth 140 feet. Land-surface datum is 4,267.8 feet above msl. Highest water level 70.65, Dec. 21, 1949; lowest 81.54, Oct. 20, 1955. Records available 1946-55. Water level, 1955: Jan. 10, 76.82; Mar. 22, 76.83; Oct. 20, 81.54.

(D-20-20)32cdb. Lon Hunt. Drilled unused water-table well in sand and gravel, diameter 6 inches, depth 125 feet. Highest water 86.17, Apr. 2, 1941; lowest 96.60, May 24, 1954. Records available 1941-43, 1945-55. Water level, 1955: Oct. 4, 91.37.

(D-20-26)33add. Frank Sproul. Drilled irrigation water-table well in sand and gravel, diameter 16 inches, depth 64 feet, perforations 24-64. Land-surface datum is 4,124.2 feet above msl. Highest water level 22.46, May 27, 1942; lowest 56.46, Jan. 19, 1954. Records available 1942, 1944-54. Measurements discontinued.

(D-21-21)11aad. J. L. Parker. Dug unused water-table well in sand and gravel, diameter 4 feet, depth 36 feet. Highest water level 23.87, Oct. 4, 1955; lowest 30.69, Apr. 9, 1941. Records available 1941, 1944-55. Water level, 1955: Oct. 4, 23.87.

(D-21-26)2baa. Randel and Hunt. Drilled unused water-table well in sand and gravel, diameter 20 inches, depth 110 feet. Highest water level 36.60, Aug. 26, 1947; lowest 55.38, Nov. 8, 1955. Records available 1947-55.

Water level, 1947-50

Date	Water level	Date	Water level	Date	Water level
Aug. 26, 1947	36.60	Nov. 11, 1950	42.88	Dec. 5, 1950	42.50
Sept. 23	36.91	12	42.88	6	42.49
Oct. 23	37.28	13	42.87	7	42.48
June 16, 1948	c39.63	14	42.85	8	42.46
Oct. 12	40.35	15	42.83	9	42.45
Feb. 9, 1949	39.19	16	42.82	10	42.45
23	40.56	17	42.81	11	42.45
Mar. 5	c41.40	18	42.78	12	42.44
Oct. 11	42.24	19	42.75	13	42.43
Dec. 20	42.40	20	42.74	14	42.43
Feb. 9, 1950	42.30	21	42.73	15	42.42
June 28	42.91	22	42.72	16	42.42
Recorder installed		23	42.69	17	42.42
Oct. 31, 1950	42.65	24	42.69	18	42.41
Nov. 1	42.68	25	42.66	19	42.41
2	42.72	26	42.65	20	42.41
3	42.76	27	42.60	21	42.41
4	42.80	28	42.59	22	42.40
5	42.84	29	42.58	23	42.40
6	42.88	30	42.57	24	42.39
7	42.88	Dec. 1	42.55	25	42.39
8	42.88	2	42.52	26	42.39
9	42.88	3	42.52	27	42.38
10	42.89	4	42.52	28	42.38
				29	42.37
c. Pumping nearby				30	42.37

Water level, 1951

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	42.37	42.25	42.16	42.13	42.10	42.32	42.76	43.64	44.11	-	44.76	44.78
2	42.36	42.25	42.16	42.12	42.11	42.34	42.77	43.65	44.13	-	44.76	44.78
3	42.36	42.24	42.16	42.12	42.11	42.36	42.78	43.67	44.15	-	44.76	44.79
4	42.36	42.24	42.16	42.11	42.11	42.38	42.80	43.69	44.17	-	44.76	44.79
5	42.35	42.23	42.17	42.11	42.12	42.40	42.82	43.71	44.19	-	44.76	44.79
6	42.35	42.23	42.17	42.10	42.12	42.42	42.84	43.73	44.21	-	44.76	44.78
7	42.35	42.22	42.17	42.10	42.12	42.44	42.86	43.75	44.23	-	44.76	44.78
8	42.34	42.22	42.17	42.09	42.13	42.46	42.88	43.77	44.25	-	44.76	44.78
9	42.34	42.21	42.17	42.09	42.13	42.48	42.90	43.79	44.27	-	44.77	44.78
10	42.34	42.21	42.17	42.08	42.14	42.50	42.92	43.81	44.29	-	44.77	44.77
11	42.33	42.20	42.17	42.08	42.14	42.52	42.94	43.83	44.31	-	44.76	44.77
12	42.33	42.19	42.17	42.07	42.15	42.54	42.96	43.85	44.33	44.77	44.75	44.76
13	42.33	42.18	42.18	42.07	42.15	42.56	42.98	43.87	44.35	44.77	44.74	44.76
14	42.32	42.17	42.18	42.06	42.16	42.58	43.00	43.89	44.37	44.77	44.74	44.76
15	42.32	42.16	42.18	42.06	42.16	42.60	43.02	43.91	44.39	44.77	44.74	44.76
16	42.31	42.15	42.18	42.06	42.16	42.61	43.04	43.92	-	44.77	44.74	44.76
17	42.31	42.15	42.18	42.06	42.17	42.62	43.07	43.93	-	44.77	44.75	44.75
18	42.30	42.15	42.18	42.06	42.18	42.63	43.11	43.94	-	44.77	44.75	44.74
19	42.30	42.15	42.18	42.06	42.19	42.64	43.16	43.95	-	44.77	44.75	44.74
20	42.30	42.15	42.18	42.07	42.20	42.65	43.22	43.96	-	44.77	44.75	44.73
21	42.30	42.15	42.18	42.07	42.21	42.66	43.28	43.97	-	44.77	44.76	44.73
22	42.30	42.15	42.18	42.07	42.22	42.67	43.34	43.98	-	44.77	44.76	44.72
23	42.29	42.15	42.17	42.08	42.23	42.68	43.40	43.99	-	44.77	44.76	44.71
24	42.29	42.15	42.17	42.08	42.24	42.69	43.46	44.00	-	44.77	44.76	44.71
25	42.29	42.16	42.16	42.08	42.25	42.70	43.52	44.01	-	44.77	44.77	44.71
26	42.28	42.16	42.16	42.09	42.26	42.71	43.58	44.02	-	44.77	44.77	44.70
27	42.28	42.16	42.15	42.09	42.27	42.72	43.59	44.03	-	44.77	44.77	44.69
28	42.27	42.16	42.15	42.09	42.28	42.73	43.60	44.04	-	44.76	44.77	44.69
29	42.27		42.14	42.10	42.29	42.74	43.61	44.05	-	44.76	44.77	44.67
30	42.26		42.14	42.10	42.30	42.75	43.62	44.07	-	44.76	44.78	44.67
31	42.26		42.13		42.31		43.63	44.09		44.76		44.67

Water level, 1952

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	44.66	44.44	44.22	44.05	44.26	44.68	45.03	45.41	45.45	46.01	46.48	46.74
2	44.64	44.43	44.22	44.04	44.27	44.69	45.04	45.39	45.47	46.03	46.49	46.75
3	44.63	44.43	44.21	44.04	44.29	44.70	45.05	45.37	45.49	46.05	46.50	46.75
4	44.62	44.42	44.21	44.04	44.30	44.72	45.07	45.36	45.51	46.07	46.51	46.76
5	44.62	44.42	44.20	44.04	44.31	44.73	45.08	45.33	45.53	46.08	46.52	46.76
6	44.61	44.41	44.19	44.04	44.33	44.74	45.09	45.29	45.55	46.10	46.53	46.77
7	44.60	44.40	44.18	44.03	44.34	44.75	45.11	45.27	45.57	46.12	46.54	46.78
8	44.60	44.39	44.17	44.03	44.36	44.76	45.12	45.25	45.59	46.14	46.55	46.79
9	44.59	44.39	44.17	44.04	44.37	44.77	45.13	45.25	45.61	46.16	46.57	46.79
10	44.58	44.38	44.16	44.07	44.39	44.78	45.15	45.25	45.63	46.17	46.58	46.80
11	44.58	44.37	44.16	44.09	44.40	44.79	45.16	45.25	45.64	46.19	46.59	46.80
12	44.57	44.36	44.15	44.10	44.41	44.80	45.17	45.27	45.66	46.20	46.60	46.81
13	44.56	44.36	44.13	44.12	44.42	44.82	45.19	45.28	45.68	46.22	46.61	46.81
14	44.55	44.35	44.14	44.13	44.44	44.83	45.20	45.30	45.70	46.23	46.62	46.82
15	44.55	44.34	44.13	44.13	44.45	44.84	45.22	45.32	45.72	46.25	46.63	46.82
16	44.54	44.33	44.11	44.14	44.47	44.85	45.23	45.34	45.74	46.26	46.64	46.82
17	44.53	44.32	44.11	44.14	44.48	44.86	45.24	45.35	45.75	46.28	46.65	46.83
18	44.52	44.31	44.11	44.14	44.50	44.87	45.26	45.37	45.77	46.29	46.65	46.83
19	44.52	44.31	44.10	44.15	44.51	44.88	45.27	45.36	45.79	46.30	46.65	46.83
20	44.51	44.30	44.09	44.15	44.52	44.89	45.29	45.34	45.81	46.32	46.65	46.83
21	44.50	44.30	44.09	44.16	44.53	44.90	45.30	45.31	45.83	46.33	46.66	46.84
22	44.50	44.29	44.09	44.17	44.54	44.92	45.32	45.30	45.85	46.35	46.67	46.84
23	44.49	44.28	44.08	44.18	44.56	44.93	45.33	45.30	45.86	46.36	46.67	46.84
24	44.48	44.28	44.07	44.18	44.57	44.94	45.34	45.31	45.88	46.38	46.68	46.84
25	44.48	44.27	44.07	44.20	44.59	44.95	45.36	45.32	45.90	46.39	46.69	46.84
26	44.47	44.26	44.07	44.20	44.60	44.96	45.37	45.34	45.92	46.40	46.70	46.85
27	44.46	44.25	44.06	44.20	44.62	44.98	45.38	45.34	45.94	46.41	46.71	46.85
28	44.46	44.25	44.05	44.22	44.63	44.99	45.38	45.37	45.96	46.43	46.72	46.85
29	44.45	44.22	44.05	44.24	44.65	45.00	45.39	45.39	45.97	46.44	46.72	46.85
30	44.44		44.05	44.25	44.66	45.01	45.40	45.41	45.99	46.45	46.73	46.85
31	44.44		44.05		44.67		45.41	45.43		46.46		46.85

Water level, 1953

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	46.85	46.68	46.49	46.55	46.97	47.28	47.78	47.55	48.82	49.68	50.04	50.29
2	46.85	46.68	46.49	46.56	46.98	47.30	47.80	47.46	48.89	49.69	50.05	50.29
3	46.85	46.67	46.49	46.57	46.99	47.31	47.83	47.42	48.94	49.69	50.06	50.30
4	46.85	46.66	46.48	46.58	47.00	47.33	47.85	47.40	48.99	49.70	50.07	50.30
5	46.84	46.65	46.48	46.60	47.01	47.35	47.87	47.40	49.05	49.72	50.08	50.31
6	46.84	46.64	46.48	46.60	47.02	47.37	47.90	47.41	49.10	49.73	50.09	50.32
7	46.84	46.63	-	46.62	47.03	-	47.92	47.43	49.16	49.74	50.10	50.32
8	46.84	46.62	-	46.64	47.04	47.41	47.94	47.45	49.21	49.75	50.11	50.32
9	46.83	46.62	-	46.65	47.05	47.43	47.96	47.48	49.26	49.76	50.12	50.33
10	46.83	46.62	-	46.67	47.07	47.45	47.98	47.52	49.32	49.77	50.12	50.34
11	46.82	46.61	-	46.68	47.08	47.47	47.99	47.56	49.36	49.78	50.13	50.34
12	46.82	46.60	-	46.70	47.09	47.48	48.01	47.62	49.43	49.80	50.14	50.34
13	46.81	46.59	-	46.71	47.14	47.49	48.03	47.66	49.48	49.81	50.15	50.35
14	46.81	46.58	-	46.73	47.17	47.50	48.05	47.70	49.53	49.83	50.17	50.35
15	46.80	46.57	-	46.74	47.20	47.51	48.06	47.74	49.58	49.85	50.18	50.36
16	46.79	46.57	-	46.75	47.19	47.52	48.07	47.79	49.59	49.85	50.19	50.36
17	46.79	46.56	-	46.78	47.14	47.53	48.10	47.83	49.62	49.87	50.20	50.36
18	46.78	46.55	-	46.80	47.11	47.55	48.11	47.90	49.63	49.88	50.20	50.36
19	46.78	46.54	-	46.81	47.10	47.56	48.13	47.95	49.63	49.89	50.21	50.37
20	46.77	46.54	-	46.82	47.10	-	48.14	48.05	49.64	49.90	50.22	50.37
21	46.76	46.53	-	46.84	47.11	-	48.16	48.14	49.64	49.92	50.23	50.37
22	46.76	46.52	-	46.85	47.12	-	48.17	48.18	49.64	49.93	50.24	50.37
23	46.75	46.52	-	46.87	47.13	-	48.19	48.26	49.64	49.94	50.24	50.38
24	46.75	46.51	-	46.88	47.16	-	48.20	48.35	49.64	49.95	50.25	50.42
25	46.74	46.51	-	46.89	47.18	-	48.23	48.41	49.64	49.96	50.25	50.46
26	46.73	46.50	-	46.90	47.20	47.69	48.25	48.47	49.64	49.98	50.26	50.48
27	46.72	46.50	-	46.91	47.21	47.70	48.28	48.53	49.65	49.99	50.27	50.44
28	46.72	46.49	-	46.91	47.22	47.72	48.20	48.59	49.65	50.00	50.27	50.35
29	46.71		-	46.93	47.23	47.74	48.03	48.66	49.66	50.01	50.28	50.28
30	46.70		-	46.94	47.24	47.76	47.90	48.70	49.67	50.02	50.28	50.25
31	46.69		-		47.26		47.68	48.77		50.03		50.23

Water level, 1954

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	50.23	-	-	50.01	50.58	51.14	51.75	-	-	-	52.64	-
2	50.23	-	-	-	50.60	51.16	51.77	-	-	-	52.65	-
3	50.23	-	-	-	50.62	51.18	51.79	-	-	-	52.65	-
4	50.23	50.17	50.17	-	50.64	51.20	51.80	-	-	-	52.66	-
5	50.23	-	50.16	-	50.65	51.22	51.82	-	-	-	52.66	-
6	50.23	-	50.14	-	50.67	51.24	51.84	-	-	-	52.67	-
7	50.23	-	50.13	-	50.68	-	51.84	-	-	-	52.68	-
8	50.24	-	50.12	-	50.70	-	51.86	-	-	-	52.68	52.72
9	50.24	-	50.11	-	50.72	-	51.88	-	52.03	-	52.68	52.72
10	-	-	50.09	-	50.74	-	51.90	-	52.04	-	52.69	52.72
11	-	-	50.08	-	50.75	-	51.92	-	52.08	-	52.70	52.72
12	-	-	50.08	-	50.76	-	51.93	-	52.11	-	52.70	52.72
13	-	-	50.08	-	50.79	-	51.95	-	52.13	-	52.70	52.72
14	-	-	50.07	-	50.81	-	51.96	-	52.16	-	52.71	52.72
15	-	-	50.07	-	50.83	-	51.98	-	52.18	-	52.71	52.72
16	-	-	50.06	-	50.85	-	52.00	-	52.20	-	52.72	52.71
17	-	-	50.06	-	50.87	-	52.01	-	52.21	-	52.72	52.71
18	-	-	50.05	-	50.89	-	52.03	-	52.22	-	52.72	52.70
19	-	-	50.04	-	50.91	-	52.04	-	52.24	-	52.72	52.70
20	-	-	50.03	-	50.94	-	52.06	51.60	52.26	-	52.73	52.69
21	-	-	50.03	-	50.95	-	52.07	-	52.28	52.58	52.73	52.68
22	-	-	50.01	-	50.97	-	52.09	-	52.29	52.58	52.73	52.68
23	-	-	50.02	-	50.98	51.64	-	-	52.31	52.59	52.73	52.67
24	-	-	50.01	-	51.00	51.65	-	-	52.32	52.60	52.73	52.66
25	-	-	50.01	-	51.02	51.66	-	-	-	52.60	-	52.66
26	-	-	50.01	-	51.04	51.68	-	-	-	52.61	-	52.65
27	-	-	50.01	-	51.05	51.69	-	-	-	52.62	-	52.65
28	-	-	50.00	50.55	51.06	51.70	-	-	-	52.62	-	52.64
29	-	-	49.99	50.56	51.08	51.72	-	-	-	52.63	-	52.63
30	-	-	50.00	50.57	51.09	51.74	-	-	-	52.63	-	52.62
31	-	-	50.00	-	51.12	-	-	-	-	52.64	-	52.62

Water level, 1955

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	52.61	52.39	52.22	52.53	52.98	53.56	54.28	54.76	53.79	54.93	55.35	55.29
2	52.60	52.38	52.22	52.54	53.00	53.59	54.32	54.71	53.81	54.96	55.36	55.28
3	52.60	52.37	52.21	52.56	53.02	53.62	54.36	54.65	53.83	54.98	55.36	55.27
4	52.60	52.36	52.21	52.58	53.04	53.66	54.40	54.60	53.86	55.00	55.37	55.26
5	52.59	52.36	52.21	52.60	53.06	53.68	54.43	54.55	53.93	55.02	55.37	55.26
6	52.58	52.36	52.20	52.62	53.08	53.70	54.46	54.51	53.98	55.04	55.37	55.25
7	52.57	52.35	52.20	52.64	53.10	53.72	54.48	54.47	54.03	55.06	55.37	55.24
8	52.57	52.34	52.19	52.65	53.12	53.75	54.50	54.44	54.08	55.08	55.38	55.23
9	52.56	52.34	52.18	52.67	53.14	53.77	54.53	54.40	54.14	55.10	55.38	55.22
10	52.55	52.33	52.18	52.68	53.16	53.79	54.56	54.35	54.19	55.11	55.38	55.21
11	52.54	52.32	52.18	52.70	53.18	53.82	54.59	54.32	54.24	55.13	55.38	55.20
12	52.54	52.32	52.18	52.72	53.20	53.85	54.62	54.28	54.30	55.15	55.38	55.19
13	52.53	52.31	52.18	52.73	53.23	53.87	54.65	54.24	54.34	55.16	55.38	55.18
14	52.52	52.30	52.18	52.73	53.25	53.89	54.68	54.21	54.40	55.18	55.38	55.17
15	52.52	52.29	52.19	52.74	53.27	53.91	54.70	54.18	54.45	55.19	55.38	55.16
16	52.50	52.28	52.22	52.75	53.29	53.93	54.72	54.14	54.49	55.21	55.37	55.15
17	52.50	52.28	52.23	52.76	53.31	53.95	54.76	54.11	54.55	55.22	55.36	55.15
18	52.49	52.27	52.27	52.77	53.33	53.97	54.78	54.08	54.58	55.24	55.36	55.14
19	52.48	52.27	52.29	52.78	53.35	53.99	54.80	54.04	54.60	55.25	55.36	55.13
20	52.48	52.26	52.31	52.80	53.37	54.02	54.82	54.01	54.62	55.26	55.35	55.12
21	52.47	52.26	52.34	52.81	53.39	54.04	54.84	53.98	54.64	55.27	55.34	55.11
22	52.46	52.26	52.36	52.82	53.41	54.06	54.86	53.95	54.65	55.28	55.34	55.10
23	52.45	52.25	52.38	52.83	53.43	54.08	54.88	53.92	54.67	55.29	55.33	55.09
24	52.44	52.24	52.41	52.84	53.44	54.10	54.90	53.87	54.70	55.30	55.33	55.08
25	52.44	52.24	52.43	52.85	53.45	54.12	54.92	53.85	54.74	55.31	55.32	55.07
26	52.43	52.24	52.46	52.87	53.46	54.14	54.92	53.82	54.77	55.32	55.31	55.06
27	52.42	52.23	52.48	52.89	53.47	54.16	54.92	53.80	54.81	55.32	55.31	55.05
28	52.42	52.22	52.50	52.92	53.49	54.19	54.89	53.78	54.84	55.33	55.30	55.04
29	52.41		52.51	52.94	53.51	54.21	54.87	53.77	54.87	55.34	55.29	55.04
30	52.40		52.50	52.96	53.52	54.25	54.82	53.77	54.90	55.34	55.29	55.02
31	52.39		52.51		53.54		54.80	53.78		55.35		55.01

(D-21-26)24baa. McNeal Cemetery. Drilled domestic water-table well in sand and gravel, diameter 8 inches, depth 196 feet. Land-surface datum is 4,195.8 feet above msl. Highest water level 112.00, Jan. 31, 1946; lowest 136.67, Oct. 19, 1955. Records available 1946-55. Water level, 1955: Jan. 11, 128.00; Mar. 21, 128.18; July 7, 129.18; Oct. 19, 136.67.

(D-22-26)28bab2. J. E. Brophy. Drilled irrigation water-table well in sand and gravel, diameter 8 inches, depth 90 feet. Highest water level 26.42, July 25, 1946; lowest 43.34, Oct. 19, 1955. Records available 1946-47, 1949-51, 1953-55. Water level, 1955: Jan. 11, 38.75; Mar. 21, 38.10; Oct. 19, 43.34.

(D-24-27)5bdb. Fred Price. Dug stock water-table well in sand and gravel, diameter 8 feet, depth 82 feet. Land-surface datum is about 3,996 feet above msl. Highest water level 54.30, May 26, 1942; lowest 62.29, Nov. 3, 1954. Records available 1942, 1944-55. Water level, 1955: Jan. 10, 61.60; Mar. 22, 62.00.

#### Coconino County

(A-21-7)9ddc. Pinewood Dairy. Dug stock water-table well in gravel, diameter 4 feet, depth 25 feet. Highest water level 11.93, June 5, 1945; lowest 19.34, Oct. 15, 1948. Records available 1944-51, 1953-54. Water level, 1955: Measurements discontinued, well destroyed.

(A-22-6)26aaa. City of Flagstaff. Drilled unused water-table well in Coconino sandstone, diameter 16 inches, reported depth 1,021 feet. Highest water level 129.68, Sept. 28, 1945; lowest 131.24, Nov. 10, 1955. Records available 1944-55. Water level, 1955: June 30, 131.19; Nov. 10, 131.24.

#### Gila County

(A-1-15)9aad. Kenneth Hoopes. Drilled industrial water-table well in sand and gravel, diameter 12 inches, depth 160 feet. Highest water level 39.25, Apr. 9, 1952; lowest 90.40, Oct. 3, 1950. Records available 1945-55. Water level, 1955: Sept. 27, 94.78, pumping nearby.

(D-1-15)13bad. -Schniffen. Drilled unused water-table well in sand and gravel, diameter 6 inches, depth 105 feet. Highest water level 3.50, May 5, 1949; lowest 38.87, Apr. 11, 1951. Records available 1946-55. Water level, 1955: Sept. 27, 19.42.



Graham County

(D-4-22)13dba. Aubrey Rabb. Drilled irrigation water-table well in sand and gravel, diameter 16 inches, reported depth 100 feet. Highest water level 17.90, Dec. 27, 1955; lowest 28.98, Aug. 31, 1953. Records available 1953-55.

Water level, 1955

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 1	19.38	Apr. 26	19.18	Aug. 30	21.50	Dec. 27	17.90
Mar. 1	19.38	June 28	21.26	Oct. 25	18.62		
29	20.48	July 26	21.66	Nov. 29	18.06		

(D-4-22)35ddd. Pat Hinton. Drilled stock water-table well in sand and gravel, diameter 6 inches, depth 75 feet. Land-surface datum is 2,859.5 feet above msl. Highest water level 17.08, Feb. 11, 1943; lowest 39.36, Mar. 29, 1940. Records available 1939-44, 1946-55. Water level, 1955: Jan. 18, 32.02; Apr. 5, 39.43, pumped recently; July 19, 38.80, pumped recently; Oct. 11, 32.90.

(D-4-23)29adc. Silas Jarvis. Drilled irrigation water-table well in sand and gravel, diameter 16 inches, depth 83 feet, cased to 83, perforations 53-73. Land-surface datum is 2,705.7 feet above msl. Highest water level 46.10, Mar. 18, 1941; lowest 63.23, Feb. 15, 1948. Records available 1940-55.

Feb. 1	54.04	Apr. 26	56.76	Aug. 30	57.04	Dec. 27	53.84
Mar. 1	53.45	May 31	58.90	Sept. 27	58.22		
29	55.64	July 26	59.36	Nov. 29	54.73		

(D-6-24)5acc. Eldon Palmer. Drilled irrigation water-table well in sand and gravel, diameter 16 inches, depth 64 feet. Land-surface datum is 2,779.6 feet above msl. Highest water level 38.93, May 29, 1941; lowest 57.70, June 28, 1955. Records available 1940-55.

Feb. 1	49.45	Apr. 26	50.90	July 26	52.37	Oct. 25	50.97
Mar. 1	49.16	May 31	51.80	Aug. 30	51.20	Nov. 29	50.30
29	50.22	June 28	57.70	Sept. 27	51.16	Dec. 27	50.08

(D-6-24)13cbb. W. J. Preston. Drilled domestic water-table well in sand and gravel, diameter 5 inches, depth 48 feet. Land-surface datum is 2,828.8 feet above msl. Highest water level 29.15, May 28, 1942; lowest 45.79, Jan 22, 1952. Records available 1939-40, 1942-55.

Feb. 1	41.97	Apr. 26	42.11	July 26	43.89	Oct. 24	43.73
Mar. 1	42.34	May 31	42.56	Aug. 30	43.90	Nov. 29	43.38
29	42.35	June 28	43.11	Sept. 27	43.79	Dec. 27	43.07

(D-6-25)17ddd. Vance Marshall. Drilled irrigation water-table well in sand and gravel, diameter 16 inches, depth 46 feet. Land-surface datum is 2,821.6 feet above msl. Highest water level 10.77, May 26, 1941; lowest 24.70, July 26, 1955. Records available 1939-46, 1948-50, 1952-55. Water level, 1955: Feb. 1, 19.58; Mar. 1, 18.88; Apr. 26, 24.16; July 26, 24.70; Aug. 30, 22.56; Sept. 27, 22.25; Nov. 29, 22.44; Dec. 27, 21.14.

(D-6-28)31aac. J. W. Earven. Drilled irrigation water-table well in sand and gravel, diameter 16 inches, reported depth 200+ feet. Highest water level 17.14, Apr. 16, 1941; lowest 68.20, Aug. 29, 1955. Records available 1940-55.

Water level, 1955

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 31	46.95	Apr. 25	47.98	July 25	56.75	Nov. 28	64.84
Feb. 28	45.44	May 30	49.56	Aug. 29	68.20	Dec. 27	53.79
Mar. 28	45.35	June 27	64.40	Oct. 24	66.10		

(D-7-26)22bac. Lee Johns. Drilled irrigation water-table well in sand and gravel, diameter 16 inches, depth 90 feet, cased to 90. Land-surface datum is 2,950.3 feet above msl. Highest water level 20.27, May 25, 1942; lowest 66.36, June 28, 1954. Records available 1940-55.

Jan. 31	46.83	May 30	58.74	Sept. 26	56.86	Dec. 27	47.38
Feb. 28	45.45	July 25	63.38	Oct. 24	52.47		
Apr. 25	54.98	Aug. 29	57.60	Nov. 30	50.22		

(D-7-27)4dad. Zelma Clonts. Drilled irrigation water-table well in sand and gravel, diameter 16 inches, depth 81 feet, cased to 81, perforations 10-60. Land-surface datum is about 3,012 feet above msl. Highest water level 9.32, Apr. 16, 1941; lowest 40.65, July 25, 1955. Records available 1940-50, 1952-55. Water level, 1955: Jan. 31, 29.82; Feb. 28, 28.50; July 25, 40.65; Sept. 26, 36.60; Oct. 24, 34.58; Dec. 27, 31.49.

Greenlee County

(D-6-31)19dad. D. W. Rapier. Drilled domestic water-table well in sand and gravel, diameter 12 inches, depth 70 feet. Highest water level 30.76, May 5, 1941; lowest 40.66, Aug. 27, 1951. Records available 1939-55. Water level, 1955: Mar. 29, 38.87; Dec. 8, 37.19.

(D-7-31)4bcc. Barney & Frazier. Drilled irrigation water-table well in sand and gravel, diameter 20 inches, depth 75 feet. Land-surface datum is 3,544.4 feet above msl. Highest water level 24.25, May 5, 1941; lowest 38.85, Aug. 11, 1954. Records available 1939-43, 1945-55. Water level, 1955: Feb. 3, 31.41; Dec. 8, 35.70.

(D-8-32)32cda. Lavar Merrill. Drilled domestic water-table well in sand and gravel, diameter 4 inches, depth 110 feet. Land-surface datum is 3,716.0 feet above msl. Highest water level 22.68, Mar. 15, 1945; lowest 38.56, Aug. 27, 1951. Records available 1939-55. Water level, 1955: Feb. 3, 33.80; Mar. 29, 34.91; June 30, 35.73; Dec. 8, 33.56.

#### Maricopa County

(A-1-1)4aaa2. Isabell-Hartner Ranches. Drilled irrigation water-table well in sand and gravel, diameter 20 inches, depth 514 feet, cased to 365, perforations 150-355. Highest water level 111.12, Feb. 2, 1953; lowest 131.55, Nov. 22, 1955. Records available 1953-55. Water level, 1955: Feb. 24, 129.94; May 13, 178.66, pumping nearby; Nov. 22, 131.55.

(A-1-4)11bc. J. B. House. Drilled domestic water-table well in sand and gravel, diameter 6 inches, depth 201 feet. Highest water level 36.75, Feb. 21, 1946; lowest 122.19, Nov. 18, 1955. Records available 1946-55. Water level, 1955: Mar. 7, 107.84; May 16, 117.00; Aug. 2, 115.88; Nov. 18, 122.19.

(A-1-6)23daa. Logan Stillwell. Drilled domestic water-table well in sand and gravel, diameter 10 inches, depth 408 feet. Land-surface datum is 1,375.7 feet above msl. Highest water level 229.20, Mar. 19, 1946; lowest 364.36, Nov. 18, 1955. Records available 1946, 1948-55. Water level, 1955: Feb. 16, 342.10; May 18, 354.69; Aug. 2, 360.45; Nov. 18, 364.36.

(A-3-1)35baa. Otis Cook. Drilled domestic water-table well in sand and gravel, diameter 6 inches, depth 217 feet. Highest water level 54.47, Mar. 20, 1946; lowest 127.56, Aug. 1, 1955. Records available 1946-55. Water level, 1955: Feb. 24, 120.29; May 12, 125.75; Aug. 1, 127.56; Nov. 21, 127.17.

(A-3-2)12caa. John M. Jacobs. Drilled unused water-table well in sand and gravel, diameter 20 inches, depth 809 feet. Land-surface datum is 1,309.7 feet above msl. Highest water level 253.96, Feb. 21, 1949; lowest 346.40, Aug. 1, 1955. Records available 1948-55. Water level, 1955: Feb. 24, 346.16; May 12, 360.90, pumping nearby; Aug. 1, 346.40; Nov. 21, 364.89, pumping nearby.

(A-3-4)15ddd. David and Leona Gooze. Drilled unused water-table well in sand and gravel, diameter 6 inches, depth 193 feet, uncased. Highest water level 165.82, Mar. 24, 1946; lowest 171.46, Oct. 21, 1952. Records available 1946-54. Water level, 1955: No measurements made.

(B-1-2)13acd. Roosevelt Irrigation District. Drilled irrigation water-table well in sand and gravel, diameter 20 inches, depth 155 feet, perforations 40-130. Land-surface datum is 958.9 feet above msl. Highest water level 39.0, Apr. 30, 1928; lowest 74.55, Nov. 21, 1955. Records available 1928-31, 1934-41, 1944-45, 1947-55. Water level, 1955: Feb. 18, 71.80; May 13, 72.82; Aug. 4, 73.15; Nov. 21, 74.55.

(B-1-3)34bbb. Roosevelt Irrigation District. Drilled irrigation water-table well in sand and gravel, diameter 20 inches, depth 200 feet, perforations 74-176. Land-surface datum is 916.7 feet above msl. Highest water level 54.2, June 1, 1944; lowest 76.32, Nov. 3, 1952. Records available 1928-55. Water level, 1955: Feb. 18, 68.49; May 13, 69.53; Aug. 4, 69.62; Nov. 22, 68.85.

(B-2-2)4dcb. Maricopa County Municipal Water Conservation District No. 1. Drilled unused water-table well in sand and gravel, diameter 20 inches, depth 500 feet, perforations 204-484. Highest water level 183.7, May 17, 1940; lowest 250.50, Feb. 16, 1955. Records available 1940-42, 1946-55. Water level, 1955: Feb. 16, 250.50.

(B-3-1)8abb. R. I. C. Manning. Drilled irrigation well in sand and gravel, diameter 20 inches, reported depth 800 feet, perforations 200-800. Highest water level 246.13, Jan. 29, 1952; lowest 289.05, Nov. 28, 1955. Records available 1951-55.

Water level, 1951-55

Date	Water level	Date	Water level	Date	Water level
Nov. 14, 1951	247.55	May 5, 1953	260.38	Nov. 18	283.21
Jan. 29, 1952	246.13	Nov. 16	268.88	May 12, 1955	284.80
Nov. 19	258.74	Feb. 5, 1954	269.01	Nov. 28	289.05

(B-4-1)8daa. Maricopa County Municipal Water Conservation District No. 1. Drilled unused water-table well in sand and gravel, diameter 20 inches, depth 500 feet, perforations 182-484. Land-surface datum is about 1,335 feet above msl. Highest water level 180.0, Nov. 28, 1938; lowest 249.51, Aug. 1, 1955. Records available 1938, 1940-42, 1944, 1946-55. Water level, 1955: Feb. 3, 246.60; May 12, 249.20; Aug. 1, 249.51.

(C-1-5)1aab. Charles Yokum. Drilled stock water-table well in sand and gravel, diameter 6 inches, depth 185 feet. Highest water level 62.77, Oct. 25, 1946; lowest 82.34, May 13, 1954. Records available 1946-55. Water level, 1955: Feb. 18, 81.25; Dec. 27, 77.90.

(C-1-7)15bbb. Lee C. Underdown. Drilled unused water-table well in sand and gravel, diameter 20 inches, depth 650 feet, perforations 164-254. Highest water level 178.22, Mar. 4, 1949; lowest 186.03, Nov. 22, 1955. Records available 1949-55. Water level, 1955: Feb. 7, 184.85; May 13, 185.86; Aug. 4, 185.54; Nov. 22, 186.03.

(D-1-5)1bbb. Salt River Valley Water Users' Association. Drilled domestic water-table well in sand and gravel, diameter 16 inches, depth 180 feet. Land-surface datum is 1,222.2 feet above msl. Highest water level 67.20, Dec. 10, 1945; lowest Dry, May 16, 1955. Records available 1945-55. Water level, 1955: Mar. 7, 156.31; May 16, dry.

(D-1-6)25aaa. Roosevelt Water Conservation District. Drilled domestic water-table well in sand and gravel, diameter 18 inches, depth 223 feet. Land-surface datum is 1,324.1 feet above msl. Highest water level 92.76, May 26, 1941; lowest 149.25, Aug. 2, 1955. Records available 1939-55. Water level, 1955: Feb. 18, 147.58; May 16, 149.22; Aug. 2, 149.25; Nov. 18, 148.11.

(D-2-5)15bbb. L. S. Breckler. Drilled domestic water-table well in sand and gravel, diameter 6 inches, depth 200 feet. Land-surface datum is 1,214.0 feet above msl. Highest water level 40.2, Mar. 23, 1945; lowest 110.62, Aug. 2, 1955. Records available 1945-55. Water level, 1955: Mar. 7, 104.05; May 13, 108.36; Aug. 2, 110.62; Nov. 18, 108.26.

(D-2-7)12ddd. L. M. Mecham. Drilled irrigation water-table well in sand and gravel, diameter 20 inches, depth 600 feet, perforations 250-585. Highest water level 177.00, Feb. 28, 1948; lowest 266.41, Nov. 18, 1955. Records available 1948-55. Water level, 1955: Nov. 18, 266.41.

#### Mohave County

(B-16-13)34dd. Dr. A. E. Carter. Dug domestic and stock water-table well in sand and gravel, diameter 4 feet, depth 20 feet. Highest water level 11.40, Nov. 8, 1955; lowest 18.50, Aug. 3, 1951. Records available 1945-55. Water level, 1955: June 1, 16.39, pumping; Nov. 8, 11.40.

(B-21-17)24cd. E. A. Kier. Drilled domestic water-table well in sand and gravel, diameter 6 inches, depth 120 feet. Highest water level 101.46, Aug. 14, 1944; lowest 112.49, Sept. 19, 1952. Records available 1944-55. Water level, 1955: June 1, 108.59; Nov. 9, 110.02.

#### Navajo County

(A-17-21)7bb. Arizona State Highway Department. Drilled unused water-table well in Coconino sandstone, diameter 10 inches, depth 110 feet. Land-surface datum is 5,110.5 feet above msl. Highest water level 39.51, June 3, 1948; lowest 44.13, July 2, 1952. Records available 1944-55. Water level, 1955: June 27, 40.56; Oct. 28, 40.40.

#### Pima County

(D-11-10)22add. Tom Greenfield. Drilled domestic and irrigation water-table well in sand and gravel, diameter 20 inches, reported depth 600 feet, cased to 600, perforations 145-582. Land-surface datum is 1,914.6 feet above msl. Highest water level 140.66, Feb. 28, 1940; lowest 186.44, May 6, 1954. Records available 1940, 1942, 1945-48, 1950-55. Water level, 1955: Jan. 5, 176.33.

(D-12-10)20ddc. B. Wong. Drilled domestic water-table well in sand and gravel, diameter 7 inches, depth 222 feet. Land-surface datum is 2,021.4 feet above msl. Highest water level 184.79, Apr. 15, 1940; lowest 222.87, Aug. 26, 1954. Records available 1940, 1942, 1944-54. Water level, 1955: Dry, measurements discontinued.

(D-12-11)18ddd. J. E. Glover. Drilled domestic and stock water-table well in sand and gravel, diameter 10 inches, depth 218 feet. Highest water level 189.37, June 13, 1941; lowest 214.92, May 6, 1954. Records available 1940-42, 1944-47, 1949-54. Water level, 1955: Dry, measurements discontinued.

(D-12-12)16bad. Cortaro Water Users' Association. Drilled unused water-table well in sand and gravel, diameter 24 to 18 inches, reported depth 300 feet, cased to 292, perforations 75-285. Highest water level 74.71, Feb. 20, 1940; lowest 123.33, Aug. 25, 1948. Records available 1939-55. Water level, 1955: Jan. 3, 103.01; Mar. 24, 106.50; July 7, 110.77; Nov. 14, 103.23.

(D-15-10)35aaa. State of Arizona. Drilled unused water-table well in sand and gravel, diameter 6 inches, depth 295 feet. Highest water level 212.17, Oct. 7, 1948; lowest 223.42, Nov. 14, 1955. Records available 1940-42, 1944, 1946-55. Water level, 1955: Jan. 5, 217.85; Apr. 21, 218.03; July 7, 219.31; Nov. 14, 223.42.

(D-15-13)2cca. City of Tucson. Dug and drilled unused water-table well in sand and gravel, diameter 12 inches, depth 104 feet. Highest water level 31.70, July 29, 1942; lowest 64.97, June 22, 1954. Records available 1942-55.

Daily highest water level, 1955  
(From recording gage)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1					59.00	60.94	63.51	59.02	-	49.70	51.01	51.28
2					59.11	61.03	63.64	57.50	-	49.66	51.03	51.17
3					59.08	61.05	63.72	56.97	-	49.61	51.02	51.39
4					58.99	61.08	63.80	-	-	49.69	51.02	51.30
5					59.17	61.17	63.90	-	-	49.56	50.99	51.18
6					59.26	61.28	64.00	-	-	49.54	50.99	51.09
7					59.27	61.36	64.13	-	-	49.55	50.97	51.17
8					59.33	61.36	64.26	-	-	49.59	50.96	51.29
9					59.43	61.49	64.37	-	-	49.67	50.81	51.18
10					-	61.68	64.50	-	-	49.72	50.81	51.15
11					-	61.82	64.62	-	-	49.84	50.83	50.98
12					-	61.84	64.68	-	-	49.95	50.97	50.82
13					-	61.89	64.72	-	-	50.02	50.92	50.80
14					-	62.02	64.66	-	46.54	50.04	50.84	51.10
15					-	61.99	64.62	-	47.09	50.14	50.84	50.71
16					-	62.14	64.72	-	47.51	50.21	50.78	50.60
17					-	62.19	64.77	-	47.95	50.32	50.78	50.90
18				59.11	-	62.26	64.70	-	48.13	50.39	50.98	50.99
19				59.11	-	62.37	64.60	-	48.36	50.43	50.87	50.95
20				59.01	-	62.48	64.38	-	48.53	50.46	50.85	50.83
21				58.97	-	62.60	64.08	-	48.72	50.52	50.77	50.77
22				58.82	-	62.64	63.86	-	48.91	50.51	50.91	50.73
23		58.04		58.84	60.32	62.70	61.45	-	49.01	50.61	50.92	50.70
24	58.70			58.77	60.24	62.88	58.40	-	49.19	50.68	50.98	50.85
25			58.86	58.81	60.28	63.00	58.04	-	49.42	50.66	50.98	50.67
26				58.81	60.52	63.07	58.26	-	49.59	50.74	51.07	50.52
27				58.86	60.62	63.18	58.79	-	49.72	50.79	51.14	50.45
28				58.74	60.66	63.24	59.43	-	49.73	50.92	51.08	50.51
29				58.94	60.64	63.30	59.95	34.53	49.84	50.92	51.12	50.61
30				59.02	60.76	63.42	60.32	34.55	49.91	50.88	51.24	50.64
31					60.84		60.55	34.77		50.89		50.64

(D-17-14)18cab. Arizona State Highway Department. Dug observation water-table well in sand and gravel, diameter 36 to 12 inches, depth 124 feet. Highest water level 52.16, Jan 2, 1940; lowest 76.32, July 17, 1955. Records available 1939-55.

Daily highest water level, 1955  
(From recording gage)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	71.78	70.80	70.57	73.31	75.14	74.75	75.50	74.79	72.12	70.03	69.85	71.26
2	71.76	70.73	70.58	73.44	75.12	74.83	75.49	74.66	72.10	69.97	69.72	71.27
3	71.75	70.75	70.60	73.60	75.04	74.89	75.49	74.63	72.09	69.85	69.97	71.41
4	71.75	70.73	70.60	73.72	74.96	74.89	75.62	74.56	72.14	69.80	70.07	71.46
5	71.65	70.67	70.64	73.85	74.94	74.88	75.71	74.45	72.13	69.72	70.13	71.50
6	71.58	70.69	70.64	73.99	74.88	74.88	75.80	74.38	72.08	69.68	70.19	71.55
7	71.60	70.63	70.60	74.12	74.80	74.87	75.89	74.29	71.96	69.55	70.27	71.51
8	71.62	70.57	70.61	74.26	74.75	74.86	75.97	74.20	71.87	69.51	70.38	71.43
9	71.55	-	70.64	74.39	74.69	74.88	75.92	74.13	71.79	69.42	70.24	71.36
10	71.49	-	70.74	74.48	74.63	74.91	75.92	74.04	71.80	69.35	70.17	71.38
11	71.49	-	70.79	74.64	74.55	74.93	76.01	73.95	71.82	69.31	70.13	71.34
12	71.47	-	70.84	74.78	74.48	74.93	76.08	73.88	71.82	69.12	70.18	71.31
13	71.36	-	70.87	74.86	74.42	74.96	76.14	73.81	71.82	69.18	70.26	71.31
14	71.40	-	70.93	74.96	74.39	75.00	76.16	73.71	71.67	69.08	70.33	71.33
15	71.36	-	71.04	75.10	74.35	74.97	76.20	73.60	71.63	69.06	70.38	71.28
16	71.25	70.57	71.11	75.20	74.30	75.02	76.27	73.50	71.50	68.98	70.45	71.27
17	71.22	-	71.28	75.26	74.26	75.01	76.32	73.41	71.40	68.98	70.50	71.32
18	71.20	-	71.40	75.40	74.25	75.07	76.15	73.30	71.28	68.93	70.60	71.36
19	71.23	-	71.51	75.44	74.20	75.22	76.04	73.17	71.17	68.88	70.59	71.35
20	71.16	-	71.73	75.42	74.16	75.34	75.99	73.09	71.05	68.90	70.66	71.35
21	71.14	-	71.94	75.38	74.14	75.44	75.83	72.98	70.97	69.00	70.68	71.32
22	71.09	-	71.97	75.37	74.16	75.51	75.72	72.88	70.88	69.07	70.83	71.29
23	71.04	70.68	72.14	75.35	74.13	75.54	75.64	72.75	70.74	69.16	70.85	71.27
24	71.06	70.61	72.27	75.32	74.09	75.55	75.54	72.65	70.66	69.26	70.94	71.27
25	71.02	70.58	72.39	75.30	74.10	75.53	75.46	72.55	70.59	69.26	70.96	71.25
26	71.04	70.66	72.53	75.26	74.12	75.50	75.37	72.43	70.49	69.34	71.02	71.20
27	70.96	70.60	72.68	75.26	74.24	75.50	75.25	72.29	70.39	69.44	71.07	71.19
28	70.95	70.62	72.83	75.19	74.36	75.44	75.15	72.19	70.29	69.53	71.08	71.17
29	70.92		72.93	75.20	74.44	75.42	75.06	72.10	70.20	69.58	71.15	71.17
30	70.87		73.06	75.20	74.53	75.56	74.98	72.15	70.12	69.63	71.25	71.15
31	70.86		73.22		74.60		74.89	72.14		69.74		71.12



(D-19-13)3baa. Owner's No. W1. Farmers Investment Co. Dug and drilled irrigation water-table well in sand and gravel, diameter 96 to 10 inches, depth 246 feet, cased to 246, perforations 42-224. Highest water level 47.44, Oct. 3, 1939; lowest 83.02, Oct. 25, 1954. Records available 1939-55. Water level, 1955: Jan. 4, 70.02; Jan. 24, 68.30; Feb. 23, 69.10; May 23, 75.88; Oct. 28, 67.74; Nov. 28, 67.08.

Pinal County

(D-2-10)8ccc. E. M. Little. Drilled unused water-table well in sand and gravel, diameter 8 inches, depth 437 feet. Highest water level 396.82, Jan. 22, 1946; lowest 411.72, Feb. 28, 1941. Records available 1939-55. Water level, 1955: Feb. 16, 405.37; May 18, 405.70; Aug. 2, 406.25; Nov. 18, 406.51.

(D-3-9)20aaa. Elmer C. VonGlahn. Drilled irrigation water-table well in sand and gravel, diameter 20 inches, depth 600 feet, perforations 285-585. Highest water level 222.70, Feb. 17, 1949; lowest 268.30, Nov. 12, 1952. Records available 1942, 1948-52. Water level, 1955: Measurements discontinued.

(D-3-9)33bbd. John Payne. Drilled unused irrigation water-table well in sand and gravel, diameter 20 inches, depth 746 feet, perforations 257-740. Highest water level 234.24, Feb. 24, 1953; lowest 281.68, Aug. 2, 1955. Records available 1953-55.

Water level, 1953-55

Date	Water level	Date	Water level	Date	Water level
Feb. 24, 1953	234.24	Oct. 17	270.59	Aug. 2	281.68
Oct. 20	260.95	Feb. 16, 1955	266.66	Nov. 18	281.22
May 11, 1954	266.68	May 18	277.42		

(D-4-8)2ccc. Arizona Ranches, Inc. Drilled unused water-table well in sand and gravel, diameter 20 inches, depth 237 feet. Land-surface datum is 1,530.5 feet above msl. Highest water level 157.96, June 12, 1941; lowest 230.48, Nov. 18, 1955. Records available 1941-55. Water level, 1955: Feb. 16, 226.02; May 18, 227.46; Aug. 2, 228.68; Nov. 18, 230.48.

(D-4-11)7cca. Bureau of Indian Affairs, well 7. Drilled unused water-table well in sand and gravel, diameter 20 inches, reported depth 162 feet, cased to 80. Land-surface datum is 1,560.4 feet above msl. Highest water level 15.30, June 29, 1943; lowest 44.14, Nov. 24, 1948. Records available 1942-55. Water level, 1955: Jan. 26, 27.72; Mar. 31, 28.52; June 27, 33.22; Oct. 12, 28.44.

(D-5-3)25add. Decker and Miller. Drilled irrigation water-table well in sand and gravel, diameter 20 inches, depth 550 feet. Highest water level 119.45, Feb. 2, 1951; lowest 192.61, Oct. 11, 1955. Records available 1951-52, 1954-55.

Water level, 1951-52, 1954-55

Date	Water level	Date	Water level	Date	Water level
Feb. 2, 1951	119.45	1953 No meas. made		Jan. 17, 1955	165.62
Feb. 7, 1952	127.10	Nov. 17, 1954	184.10	Oct. 11	192.61

(D-5-9)29ada. Bureau of Indian Affairs well 76. Drilled unused water-table well in sand and gravel, diameter 16 inches, reported depth 616 feet, perforations 134-440. Land-surface datum is 1,520.0 feet above msl. Highest water level 114.24, Feb. 16, 1944; lowest 190.12, June 27, 1955. Records available 1942-55. Water level, 1955: Jan. 26, 161.72; Mar. 31, 187.70; June 27, 190.12; Oct. 12, 173.54.

(D-6-6)25ddd. H. L. Early. Drilled irrigation water-table well in sand and gravel, diameter 16 inches, depth 171 feet. Land-surface datum is 1,438.3 feet above msl. Highest water level 39.00, Apr. 18, 1940; lowest 123.00, June 29, 1955. Records available 1940-52, 1954-55. Water level, 1955: Jan. 17, 104.32; Mar. 30, 111.55; June 29, 123.00; Oct. 12, 108.17.

(D-7-7)11cdd. E. C. Grasty. Drilled irrigation water-table well in sand and gravel, diameter 20 inches, depth 460 feet, perforations 100-430. Land-surface datum is 1,498.2 feet above msl. Highest water level 85.93, Mar. 11, 1942; lowest 194.26, Oct. 12, 1955. Records available 1942-55. Water level, 1955: Oct. 12, 194.26.

(D-8-6)30dad. Chiu Chuischu Ranch. Drilled irrigation water-table well in sand and gravel, diameter 20 inches, depth 296 feet, perforations 69-200. Highest water level 108.59, July 28, 1948; lowest 172.39, Oct. 14, 1955. Records available 1948-52, 1954-55. Water level, 1955: Jan. 26, 145.81; Mar. 30, 156.60; June 28, 161.60; Oct. 14, 172.39.

(D-8-7)25ddd. R. E. Hamilton. Drilled irrigation water-table well in sand and gravel, diameter 20 inches, depth 997 feet. Land-surface datum is 1,614.8 feet above msl. Highest water level 124.47, Mar. 24, 1941; lowest 281.10, Aug. 4, 1954. Records available 1940-52, 1954-55. Water level, 1955: Jan. 17, 264.95.

(D-10-9)36ddd1. King Investment Co. Drilled domestic water-table well in sand and gravel, depth 230 feet, diameter 8 inches. Highest water level 134.40, Oct. 12, 1939; lowest 166.77, Jan 5, 1955. Records available 1939, 1941-44, 1949-55. Water level, 1955: Jan. 5, 166.77; Mar. 24, 173.73, pumping nearby; July 7, 179.00, pumping nearby.

## Santa Cruz County

(D-22-13)35dcd. T. T. Pendleton. Drilled irrigation water-table well in sand and gravel, diameter 20 inches, depth 88 feet. Highest water level 11.06, Oct. 27, 1955; lowest 53.71, Feb. 9, 1954. Records available 1939-55. Water level, 1955: Jan. 3, 29.01; Apr. 25, 33.43; July 8, 38.30; Oct. 27, 11.06.

(D-23-14)27baa. Ramon Michelena. Dug unused water-table well in sand and gravel, diameter 5 feet, depth 36 feet, concrete casing to 9, open hole 9-36. Highest water level 15.95, Mar. 25, 1955; lowest 21.80, July 28, 1948. Records available 1939-55. Water level, 1955: Jan. 4, 17.48; Jan. 24, 19.12; Feb. 23, 17.15; Mar. 25, 15.95; May 23, 16.87; June 22, 18.07; July 8, 18.55; Oct. 27, 16.72.

## Yavapai County

(B-11-5)25dab. Mr. Towne. Drilled unused water-table well in sand and gravel, diameter 8 inches, depth 212 feet. Highest water level 23.60, July 16, 1952; lowest 40.80; Aug. 4, 1951. Records available 1946, 1948-49, 1951-55. Water level, 1955: June 1, 33.48; Nov. 7, 31.56.

(B-13-6)9dd. J. W. Ropeter. Dug irrigation water-table well in sand and gravel, diameter 6 feet, depth 22 feet. Well deepened. Highest water level 13.98, Jan. 17, 1945; lowest 18.08, June 1, 1955. Records available 1945-49, 1951-55. Water level, 1955: June 1, 18.08; Nov. 7, 15.34.

(B-14-4)33ab. C. C. McLain. Drilled unused water-table well in sand and gravel, diameter 16 inches, depth 73 feet. Well deepened to 85 feet. Highest water level 11.03, Apr. 14, 1945; lowest 18.43, June 1, 1955. Records available 1944-49, 1951-55. Water level, 1955: June 1, 18.43; Nov. 8, 18.17.

## Yuma County

(B-5-16)10ddd. Crowder Cattle Co. Drilled unused water-table well in sand and gravel, diameter 16 inches, depth 164 feet. Highest water level 112.60, Feb. 21, 1946; lowest 113.70, Feb. 8, 1955. Records available 1946, 1948-55. Water level, 1955: Feb. 8, 113.70.

(C-8-16)28bda. Bob Anderson. Drilled domestic well in sand and gravel, diameter 16 inches, depth 419 feet. Highest water level 82.62, Dec. 19, 1945; lowest 86.98, Mar. 3, 1954. Records available 1945-47, 1949-55. Water level, 1955: Jan. 25, 85.18.

(C-9-22)17ddd. Archie J. Griffin. Drilled unused water-table well in sand and gravel, diameter 16 inches, depth 195 feet. Land-surface datum is 210.5 feet above msl. Highest water level 70.42, Jan. 27, 1955; lowest 97.63, Sept. 5, 1946. Records available 1945-55. Water level, 1955: Jan. 27, 70.42.