Water Resources Survey

Part I:

HISTORY OF LAND AND WATER USE ON IRRIGATED AREAS

and

Part II:

MAPS SHOWING IRRIGATED AREAS IN COLORS DESIGNATING THE SOURCES OF SUPPLY

Treasure County, Montana

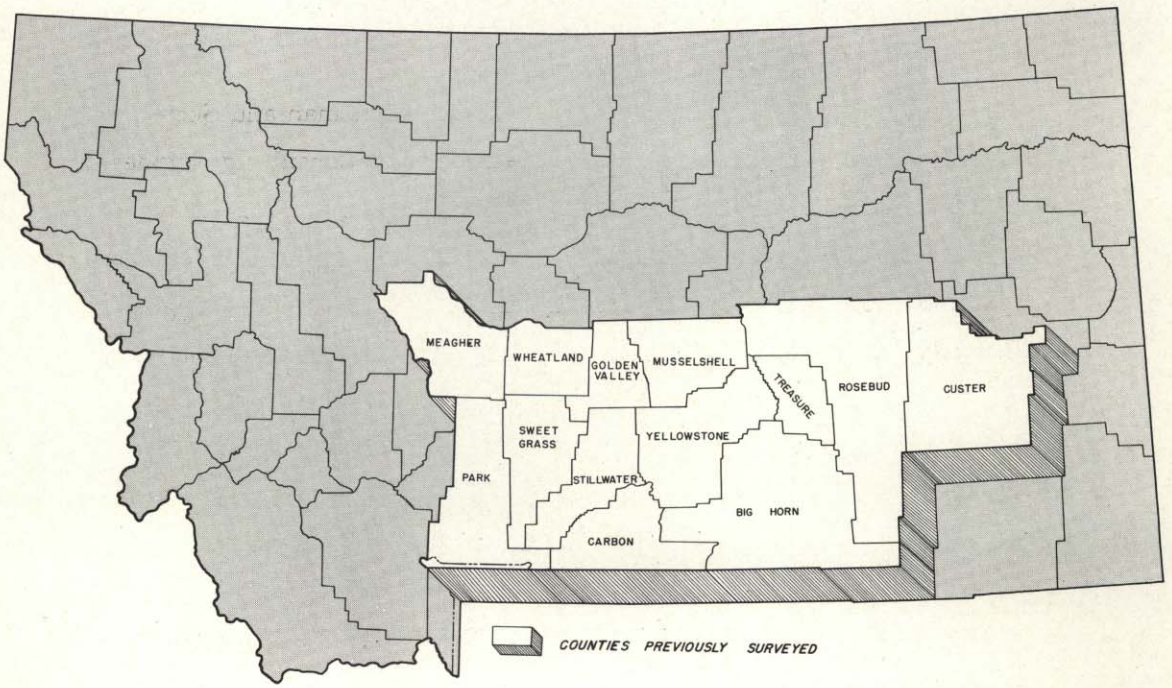
Published by
STATE ENGINEER'S OFFICE
Helena, Montana, December, 1951

WATER RESOURCES SURVEY

TREASURE COUNTY
MONTANA

Part I

History of Land and Water Use
on Irrigated Areas



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O. W. Monson, Irrigation Engineer, Consultant and Project Leader, Bozeman

December, 1951

Honorable John W. Bonner
Governor of Montana
Capitol Building
Helena, Montana

Dear Governor Bonner:

Submitted herewith is a consolidated report on the Water Resources Survey of Treasure County, Montana.

This work is being carried on with funds made available to the State Engineer by the 32nd Legislative Session, 1951, and in cooperation with the State Water Conservation Board and the Montana State Agricultural Experiment Station.

The report is divided into two parts. Part I consists of history of land and water use, irrigated lands, water rights, etc., and Part II contains all of the township maps in the county showing in color the lands irrigated from each source or canal system.

Work has been completed and reports are now available for the following counties: Yellowstone, Carbon, Stillwater, Big Horn, Custer, Rosebud, Musselshell, Golden Valley, Wheatland, Meagher, Sweet Grass, Park and Treasure.

The office files contain minute descriptions and details of each individual water right, water and land use, etc., which are too voluminous to be included herein. These office files are available for inspection to those who are interested.

The historical data contained in this report can never become obsolete. If new information is added from time to time as new developments occur, the report can always be kept current and up to date.

Respectfully submitted,

FRED E. BUCK, State Engineer

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ACKNOWLEDGMENTS

A survey and study of water resources involves many phases of both field and office work in order to gather the necessary data to make the information complete and comprehensive. Appreciation of the splendid cooperation of various agencies and individuals who gave their time and assistance in aiding us in gathering the data for the preparation of this report is here acknowledged.

Treasure County Officials

Roy Ward, Chairman — Walter Hope, Commissioner
J. J. Mouat, Commissioner
Orville Campbell, Clerk and Recorder — Harold Wolff, Clerk of Court
Ellis Williams, Assessor

M. B. Milligan—"History and Organization"—General Auditor, State Board of Equalization

R. A. Dightman—"Climate"—Section Director, U. S. Weather Bureau

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Sterle E. Dale—"Treasure County Soil Conservation District"—Work Unit Conservationist, S. C. S.

Truman C. Anderson—State Conservationist, S. C. S.

Harley W. Roath—County Extension Agent

Frank Stermitz—District Engineer, U. S. G. S.

E. E. Fenton—Secretary, Yellowstone Irrigation District

Ralph Swanson—Secretary, Rancher Ditch Company

D. M. Manning—Big Horn-Tullock Project

Arne Mysse—Secretary-Treasurer, Box Elder Ditch

Marion Guerkink—Secretary-Treasurer, Hysham Water Users' Association

The State Engineer's Office, Water Resources Survey, hereby expresses sincere appreciation to the many ranchers, farmers and stockmen, who have given their helpful cooperation in this survey.

FOREWORD

In nearly all of the 17 Western Reclamation States a water right is obtained by first making a filing with some legally designated central state agency—usually the State Engineer's Office—setting forth the amount of water desired and the area proposed to be irrigated. A study is then made of the sufficiency of the water supply, and, if found adequate, a permit for use of the water is issued and recorded. If studies show that the stream is depleted, the application is denied. The procedure in Montana, however, is vastly different.

In Montana the right to the use of water from a stream not adjudicated by the courts may be acquired in one of two ways. First, by posting a notice on the stream and filing a copy of same in the office of the County Clerk of the county wherein the appropriation is located and then proceeding to divert and use the water. Secondly, a person may divert and use water from a stream without posting or filing notice, in which case a water right based thereon has been recognized as valid by the courts. Whenever it becomes necessary to adjudicate the stream both methods of acquiring rights have been recognized by the courts and the amount of water finally decreed and dates of priority in either case are determined by the evidences and proofs.

Under Montana law there is no restriction as to the amount of water one may designate in his notice of appropriation. As a consequence, the amount set forth in the filing in no way indicates the amount being diverted and used, nor does it show whether or not the water was ever used at all to perfect the right. Furthermore, there is no relationship whatsoever between the amount of water filed on and the normal flow of the stream. To further complicate this matter there is no law of abandonment in Montana. Action must be brought in court to abandon a right, which makes it almost impossible to prove abandonment if the defendant wishes to oppose the action.

There is no central office in the State where recordings are filed, or any supervision over the distribution of water from unadjudicated streams. The distribution of water from adjudicated streams is supervised entirely by the District Court that handed down the decree. One wishing to study the validity of a water right on a stream not adjudicated must make a search of the county records wherein the stream is located in perhaps two, three, or more counties if the stream courses through them. About the only result one will accomplish by such a research will be a tabulation of the dates of filing. The amounts of water filed on will be of no consequence, there is no conclusive evidence that the recorded appropriations have been perfected, and there is no record of the rights which are being used but never recorded. Therefore, a purchaser of ranch property, where he has to depend upon irrigation from a stream that is not adjudicated, has no way of determining the validity or priority of his water right. He has no assurance of the value of the right until the stream is adjudicated by the court, when each claimant must prove his claim by material witnesses.

The pioneers who are able to offer direct testimony in adjudication suits are rapidly passing. One phase of this Water Resources Survey is to obtain all of the first-hand information possible on water and land use from the "old-timers" who are left, before it is too late. These data will include every known water right up to the time of completing the work in the respective counties, and the information will be on file for inspection in the State Engineer's Office. At the time of this publication, work has been completed and reports are available for the following counties: Yellowstone, Carbon, Stillwater, Big Horn, Custer, Rosebud, Musselshell, Golden Valley, Wheatland, Meagher, Sweet Grass, Park and Treasure. A person

having interests in lands located in any of the above-named counties may obtain a good idea of the sufficiency and priority of the water rights appurtenant to the land in question after studying the records.

In this and succeeding volumes of the data compiled by this Water Resources Survey, it is the intention to provide as much information as is possible relative to the water right records of the various counties, as well as to assemble such other information as may be available from all sources having knowledge of these various water rights. Every precaution is being taken to avoid errors in the compilation of these data.

The results of this work, in the counties affected, proved to be very valuable and necessary in negotiating the Yellowstone River Compact between the states of Wyoming, North Dakota, and Montana. In arriving at an equitable division of the waters between the states, it was necessary for Montana to have a catalog of its irrigated land and water use. This same question will undoubtedly arise in other river basins. It is highly important that Montana gather such data, and thereby be able to defend its water rights in the development of the great river basins of the Missouri and Columbia rivers and the international streams between Canada and Montana.

The subject of water rights is coming more and more into prominence as the rapid expansion of our irrigated area proceeds under the impetus of both State and Federal development programs. As new canals are dug and old canals and ditches are enlarged and extended, the relative area of land to be irrigated, compared to the water supply available for irrigation, becomes greater, and a competition for the limited water supply results, which often develops into controversy over the right of use of the water.

In a strict sense a water right does not imply ownership of the water in the same way as does a deed to a tract of land or a certificate of title to an automobile. A water right implies only the right to divert and use the water. Water when stored in a reservoir, however, is recognized as real property which may be sold or disposed of as desired by the owner. The ownership of the water of our rivers and streams rests in the State and the rules under which the State grants to the individual the right to use these waters are known as Water Right Laws.

The early settlers in Montana took up land under the provisions of the Homestead Law of 1862 and the Desert Land Act of 1877. The former Act gave 160 acres of land to anyone who settled on it and put it into cultivation. The latter deeded 640 acres of land to anyone who would irrigate it and pay the government $1.25 per acre. In 1890, filings under the Desert Land Act were reduced to 320 acres. The construction of ditches on desert claims was in compliance for title to land rather than for irrigation, and little attention was paid to the water supply available. Consequently, miles of ditches were dug in Montana through which no water ever flowed. This is especially true in the drier parts of the state, where the diversions were made from intermittent streams.

In the more fertile mountain valleys irrigation was given more importance than in the plains country. Live streams provided a dependable source of water supply and the ditches which tapped them were designed to actually carry water, not merely to comply with a legal requirement to obtain title to a piece of land. Thus, the right to diversion and use of water for irrigation became as important as the acquisition of title to the land.

But, while the government granted a patent deed as evidence of title to the land upon proof of compliance with the Homestead Laws, there was no deed, certificate of title, or other legal instrument offered as evidence of title to a water right.

Water rights refer also to uses other than those for irrigation. Thus, the perfected right to the use of water for mining, power, fish hatcheries, bird refuges, recreational purposes, municipal needs, culinary supply and sewage disposal, manufacturing or navigation—all may become valid water rights.

The first irrigators took for granted their right to use water from creeks or rivers for irrigation. They saw water going to waste and appropriated it to their needs. It was as free to them as the air they breathed. They made no official record of the game they shot for food or the fish they caught in the streams and likewise considered it unnecessary to make official record of the time, place, or the amount of water diverted for irrigation. However, time has changed these conditions and it is now necessary to record the game killed and limit the fish catch in order to perpetuate game, and stock the streams. Likewise, it is becoming more and more necessary to file a claim for water appropriated from the streams and rivers for irrigation or other uses in order to protect the rights.

When game was plentiful, no one concerned himself with the number of deer a person killed, but when game became scarce, steps were taken to prevent a few persons from taking more than their share while others had to go without. To do this it became necessary to issue licenses or permits to kill game and also to keep a record of game killed—a practice which is still followed.

Likewise, when only a few settlers diverted water for irrigation and the supply was more than enough for all, no one was concerned about the exact amount used by any one person. But as more and more settlers constructed diversion dams and ditches and tapped the rivers and streams for irrigation water, it soon became evident that there would not be enough water for all. Thus, a year with low water brought about disputes over the division of the supply. The older settlers, in such cases, demanded that the later comers close down their headgates and refrain from taking water, in order that the prior appropriations might have a full supply. The later users, on the other hand, insisted that the available supply be divided among all users so that all might share alike.

Thus, progressive over-development of irrigation, together with the occurrence of seasons of water shortage, combined to bring about the enactment of Water Right Laws in the Western States where irrigation is practiced.

METHOD OF SURVEY

Data incorporated in this report were obtained by both the office and field survey method in cooperation with the irrigators on the land.

First, ownership plats were made up from the Courthouse records, after which field forms were prepared for each owner as they appeared on the plats, showing the name of the owner, aerial photograph number and farm boundary. The appropriated and decreed water rights that fall within the ownership boundary were also platted on this field form. Both the appropriated and decreed water rights were checked with the ownership and deeds in the Courthouse records to determine, if possible, the name of the present day water user. All the water right information was listed on the field form and later verified by the water user in a farm by farm survey.

For all irrigation systems, water users were asked specific information as to the source of water, present acreage irrigated, potential irrigable acreage under existing works, seeped acreage, condition of irrigation system, type of system and water supply.

The information in regard to the location of the irrigation system, present irrigated and potential irrigable lands under existing works, was indicated on aerial photographs, with the exact location of each shown, and the various systems distinguished by color.

The data obtained by the field survey was mapped on township maps from the aerial photographs by means of projection. In addition to the information pertaining to irrigation, all culture, drainage, section lines, etc. were mapped in order to make complete and authentic township plats for the area concerned. This information was then mapped by farm units on individual farm forms that show the farm boundary, the location and type of irrigation system, location of irrigated and potential irrigable lands under the system, present irrigated acres, potential irrigable acres under existing works, type of system, source of water, etc. After these farm unit forms were completed, a summary was made of each township, which shows the name of the water user, section, township and range, source of water, whether a user has a private irrigation system or is under a ditch company or irrigation district, acres irrigated from each source, present irrigated acres, potential irrigable acres under existing facilities, and maximum irrigable acres. The summary given in this report was tabulated from these township summaries to show the totals for the county.

After this was accomplished and a final check made, color separation maps were drawn which included from three to ten separation plates, depending on the number of colors that appear on the final township map in Part II of this report.

Section and township corner locations were obtained by the photogrammetric system, based on Government land office maps, county maps, plane table sheets and other sources.

So far as known this is the first survey of its kind ever to be consummated in the United States. The value of this work has been well substantiated by giving Montana its first accurate and verified information concerning its water use and resources under existing irrigation facilities. New lands to be developed by State and Federal construction agencies are not within the scope of this report. No effort has been made to analyze economic possibilities, or the problems of the irrigated projects, or to make recommendations as to their future development. The facts

presented are as found at the time of completing this report and provide the items and figures from which a detailed analysis of water and land use can be made.

The historical data contained in this report can never become obsolete. If new information is added from time to time as new developments occur, the report can always be kept current and up to date.

GENERAL INFORMATION ABOUT

TREASURE COUNTY

HISTORY AND ORGANIZATION

A year before Captain William Clark passed eastward through territory now comprising Treasure County, Francois Larocque, agent of the Northwest Fur Company of Canada, spent a summer in the region trading, trapping and exploring. Two years after Larocque, in 1807, Manuel Lisa erected the first trading post and the first permanent buildings in Montana near the confluence of Big Horn and Yellowstone rivers. The post was abandoned after a few years but others were established from time to time, each more or less short lived. The last, Fort Pease, was erected on the Yellowstone near the present site of Myers for the purpose of competing with Fort Benton for trade of western gold camps. It was completed in 1875, immediately attacked by Sioux Indians, and finally relieved early the following spring by four troops of cavalry from Fort Ellis, 175 miles farther west.

In 1876, the year of the Custer Massacre, John Guy, William Mouatt, Ben Green, and Tom Carter established themselves near the site of Myers, and the following year, 1877, a Mr. Tolbert settled on Froze-to-death Creek. Tolbert was followed by J. Isaac, who settled on Pease Bottom after having been mustered out of the army at Fort Custer in 1878, and Ed Jones, who arrived with a herd of cattle from Deer Lodge a few years later.

During the 1870's John Guy broke up land and tried to farm, the first gesture of that sort in the region, but to all intents and purposes the country remained as Indians left it until the Northern Pacific's march across Montana brought settlement and easy access to markets in 1882. An influx of settlers in the wake of the railroad located along creeks and rivers to engage in stockraising, an industry that has remained of dominant importance ever since.

Treasure, one of the newest and smallest of Montana counties, was set aside from western Rosebud County by the Sixteenth Legislative Assembly and was organized April 1, 1919, with the seat of government at Hysham. Confidence of its residents in developed and potential resources of the section is indicated in the choice of county name.

Hysham, centrally located, was named for Charles J. Hysham, an Omaha cattleman long connected with the Flying E outfit running thousands of head of cattle on the reservation south of Yellowstone river. The town is of comparatively recent origin, the first building, a hardware store, being erected by John C. Lyndes in 1909.

Census figures for 1950 credit Treasure County with a population of 1,402, ranking it 54th among counties of the state. In area, with 998 square miles, it ranks 53rd. The County is irregular in shape, approximately 39 miles from east to west, and 42 miles from north to south in its extremities, but due to its shape does not embrace the area that these figures would indicate. It is bordered by Rosebud County on the north and east, by Big Horn County on the south and by Yellowstone County on the west.

TRANSPORTATION

The area is served by the Northern Pacific Railroad and the Northern Greyhound Bus Lines. U. S. Highway's 10 and 12 provide convenient marketing outlets for the livestock and

agricultural products from which the area derives its livelihood. The county has availed itself of the opportunity offered by the Federal Aid Plan for secondary highway systems. Approximately 14 miles of surfaced highway up Sarpy Creek and 4½ miles from U. S. Highway's 10 and 12 to Myers has been accomplished under this plan to date. The plan allocates funds to the State Highway Planning Board to be used by the state for construction of the secondary roads. Working in conjunction with the county, the state constructs the highways chosen by the county and then turns the highway back to the county for future maintenance. These funds are allocated to the various counties throughout the state in proportion to the unimproved roads in the county which will eventually fit into a well organized system of secondary highways.

In addition to the above mentioned highways, the county is served by a series of graded county roads which provide year around access to the main highways and railway shipping points. Billings, Montana is located 80 miles southwest of Hysham and affords access to airline facilities serving all points as well as a convenient trading center for the residents of Treasure County. Miles City, which is located 73 miles east of Hysham, is another major trading center for the area.

CLIMATE

Treasure County climate reflects little of the wide variations found in the western half of Montana, except the southeastern edge along the Wolf Mountains. The area is generally dry and variations in annual rainfall totals, while large, are not as great as in many other parts of Montana. The seasonal variation in temperature is quite extensive, and larger than for most other areas except north and east of Fort Peck Reservoir. There is plentiful sunshine, and the summers are relatively warm. The northern part of the county borders on one of the most arid areas in Montana.

Climatic data are limited to Sarpy Creek, about 14 miles south and southeast of Hysham, for the years 1925-1942, and to Hysham, 1945-1951. For the 17 years of Sarpy Creek record, annual precipitation varied from 18.87 inches in 1927 to 5.66 inches in 1934, with an average of 11.48 inches. The few years of Hysham records seem to indicate about the same average. Wettest months normally are May and June, as is the case with most of the state. The growing season averages about 125 days in length, from May 22nd to September 24th, but an occasional season of less than 100 days occurs. The normal mean annual temperature at Sarpy Creek is 45.6°, and ranges from a monthly normal of 20.4° in January to 72.3° in July. Extremes for the period of record were: warmest 111° in July, 1936; coldest -53° in February, 1936. Since 1945, Hysham has recorded a high of 111° and a low of -38°. The elevation at Hysham is 2,650 feet, while the Sarpy Creek record was obtained at an elevation of about 2,700 feet.

SOILS

The soils of Treasure County lie within the Brown soils zone where the rainfall is insufficient for the accumulation of much organic matter in the surface soil and for the leaching of the more soluble mineral salts from the soil body. Successful irrigation of such soils require adequate drainage, natural or artificial to assure removal of excess water that might otherwise be evaporated from the surface and leave an accumulation of salts in the upper soil horizons.

The sedimentary geologic formations exposed in the uplands range in age from Tertiary to Late Cretaceous. These formations are eroded into rough broken lands or stream breaks

within 6 to 10 miles of the Yellowstone River, and within 3 or more miles of such streams as Tullock, Sarpy and Muggins.

The smoother, more mature darker-colored arable soils are found on the higher divides in the southeastern part of the county. They are chiefly loams and sandy loams formed by the weathering of the Tongue River sandstones and siltstones. The tracts are under cultivation and are farmed by dryland methods. Local tracts of similar textured soils but somewhat more shallow and lighter colored soils also are found in the northeastern part where the more massive sandstones of the Judith River formation are exposed.

Heavy saline clays, derived from the Bear Paw shales, cover most of the northeastern one-third of the county. The relief of these soils above the breaks of the Yellowstone River is rolling to broken gullied clay hills and ridges. The soil and water resources of this area are indicated by the name of such creeks as Froze-to-Death and Starved-to-Death. Large sage brush predominates on the tracts.

The soils of the remaining uplands in the northwestern, central and southwestern parts have formed on interbedded to massive sandstones and shales of such geologic formations as the Lebo, Tullock and Hell Creek. In general, the soils are shallow, immature and have a wide range in texture. Much of these areas are characterized by intrenched drainage courses and by sandstone-capped buttes, hills and ridges. Most of it is suitable only for the grazing of livestock.

The character of the irrigated and potentially irrigated soils in the valley of such streams as the Yellowstone, Tullock, and Sarpy depends upon the nature of the sediments or alluvium deposited by the main stream and upon the nature of the alluvium washed from the local uplands. These soils are quite variable in depth, texture, stratification, salinity and thickness and color of the surface soil. They may be divided into three general groups: (1) Those subject to seasonal overflow, (2) Those occasionally overflowed, and (3) Those above high water level.

The soils of the flood plains of the Yellowstone River subject to seasonal overflow and lying above river wash are the deep sandy loams and loamy sands of the Banks series and the poorly drained, saline, stratified and medium to heavy textured Laurel soils in back water areas. The sub-irrigated medium-textured soils of the Laurel series when protected from flood water, drained and cleared of brush, are suitable for the production of most of the crops grown under irrigation in the area.

The soils on the intermediate terraces subject to an occasional overflow south of the Yellowstone River are chiefly the very fine sandy to silty soils of the Havre series with sandy subsoils and the Harlem clays with medium-textured subsoils. These soils when properly managed and drained to prevent water logging and the accumulation of alkali are among the more productive irrigated soils in the valley. The deep, saline heavy clays of the Bowdoin series occur chiefly north of the river in the eastern part of the valley. These soils are difficult to manage and are suitable chiefly for irrigated pastures and for the production of crops that can withstand a fair content of soluble salts until such time as the physical condition of the soil has improved and subsoil drainage developed.

The soils on the coalescing fans forming the higher terraces or benches south of the river are largely very fine sandy loam and silty clay loams of the Huff series with deep medium tex-

tured subsoils. In places, the silty clay loams are characterized by well developed clay pans. The Huff soils without clay pans are productive and have a wide crop adaptation.

The soils in the valleys of Tullock and Sarpy creeks are derived mainly from wash from the uplands and are chiefly deep clay loams and silty clays containing variable amounts of soluble salts. The flood water of these streams are diverted onto the better drained terraces and slopes for the production of alfalfa and other crops.

The Yellowstone River Valley is locally bordered on the north by dissected gravel-capped benches rising 75 or more feet above the level of the stream. The soils on these benches are chiefly clay loams underlain in most places at 4 or more feet with loose gravel and sand. They are potentially irrigable land with a wide crop adaptation.

More detailed information in regards to the soils of the Yellowstone River Valley is found in soil survey bulletin entitled "The Middle Yellowstone Valley Area" by DeYoung, Nunn and Smith, series 1933 No. 33, Bureau of Plant Industry, United States Department of Agriculture.

CROPS

The crop production capacity of Treasure County is quite high, since a good portion of the farm land lies within the Yellowstone Valley and can be irrigated. Of the approximate 629,760 acres of land in the county about 151,850 acres have been classified as farm land. Despite the fact that cash crops are of minor importance, the farm and ranch income for crops sold in 1949 was $865,897. This may be compared to the total income of $2,025,899 for that year.

According to the 1950 census 11,140 acres of crop land was classified as being irrigated, comprising 97 farm and ranch units.

The principal crops grown in the county and the 1949 acreages are: non-legume hay crops, 12,244; alfalfa hay, 9,641; winter wheat, 4,763; alfalfa seed, 4,644; barley, 2,737; sugar beets, 2,185; oats (for grain and hay) 1,558; and corn, 657 acres. The total acreage included in these figures is somewhat larger than the irrigated acreage of crop land mentioned above due to the inclusion of the number of acres of native non-legume hay and other dry land crops.

Some new forage crops are being tried, such as intermediate wheat grass and tall wheat grass, with promising results obtained. Forage crop seed production also shows considerable promise. Crop yields are generally good; however, this area is not entirely free from the difficulties that accompany irrigation. Some of the lands under the older irrigation systems has suffered from lack of drainage and some new acreage will be threatened later on. Fertility, irrigation methods best suited to the crop, soil texture, and slope of the land are all problems which in many cases remain unsolved.

The full development of the Hysham Pumping Project, which will be starting its third year of operation in 1952, will make a definite impact on the crop production and the whole economy of the county.

LIVESTOCK

The livestock industry is the major source of income in Treasure County, with cattle and sheep predominating. In 1949 the farm and ranch income totalled $2,025,899, of which $1,159,912 was derived from livestock sales.

Geographically, the county is divided by the Yellowstone River into two parts of approximately the same size. The grazing land lying north of the river is generally a heavy soil which supports a Browse type vegetation, such as sage, salt brush and winter fat interspersed with varying amounts of Western Wheat, Blue Grama, and other grasses. That part lying south of the Yellowstone River is characterized by having a more grassy type vegetation, supporting such plants as Western Wheat Grass, Green Needle, Blue Grama and others, together with small amounts of sage and other Browse plants. The Browse plant present in the county has an advantage over the straight grasses, having a higher percentage of Vitamin A and protein. The grazing capacity will range from 16 animal units per section on about one-third of the area, with the remainder supporting 11 or 12 per section.

Severe winters are no exception in Treasure County, although there are some advantages for wintering cattle in the area. The generally rough terrain affords protection and exposes some vegetation for feed during the winter months. Cattle and sheep do well on a minimum of supplemental feeds and extra forage is not ordinarily needed for more than three to five months where adequate range is available. Some ranchers run stock on the range the year around with no extra feed of any kind.

There are some quite large ranch units operating 30 to 40 sections of land; however, the average stockman has a much smaller acreage and does considerable farming to raise feed for his livestock.

Hogs and dairy cattle are kept on most farms, being raised in sufficient numbers to supply the home needs with meat and dairy products. The meager surpluses are sold to local markets. Some purebred Herefords and Angus cattle are produced in the county.

WATER SUPPLY

The principal streams in Treasure County from which water is diverted for irrigation purposes are the Yellowstone and Big Horn Rivers and their tributaries. The Yellowstone River enters the county from the west at the mouth of the Big Horn River and follows a northeasterly course through the county. The Big Horn River, flowing to the north, forms approximately 12 miles of the west boundary line of the county before emptying into the Yellowstone near the town of Big Horn.

The main diversion ditches from the Yellowstone are the Rancher Ditch and the Yellowstone Irrigation District system. The Hysham Water Users' Association is a pumping system from the Yellowstone River, and water for the Box Elder Ditch is pumped from the Yellowstone Irrigation District canal system. The principal diversion ditch from the Big Horn River is the Big Horn-Tullock Ditch. These systems are supplemented by numerous private ditches, both diversion and pumping systems, which normally supply the areas adjacent to the rivers

with an adequate water supply. The areas not covered by these systems depend largely on flood irrigation, as most of the streams in the county do not ordinarily provide adequate water for irrigation purposes.

Yellowstone River

From its headwaters in northwestern Wyoming to its confluence with the Missouri River near the Montana-North Dakota border, the Yellowstone River plays a very important role in Montana's economy. Yellowstone Lake is located near the headwaters and comprises an area of about 142 square miles. The lake provides a considerable amount of natural flow regulation and assures an adequate year round water supply. Were it not for the Yellowstone River, Treasure County and a major portion of eastern Montana would be arid waste land instead of the highly productive region that it is. The main tributary as applied to Treasure County is the Big Horn River, and supplementing it are several small creeks; namely, Injun, Alkali, Muggins, Froze-to-Death, and Starved-to-Death creeks from the north; and Unknown, Box Elder, Horse, Beaver, Bear, and Sarpy creeks from the south. As might be expected from some of the names, these creeks are likely to contribute dust instead of water except during periods of wet weather or spring run-off, hence they must be classified as intermittent streams.

Available records of the flow of Yellowstone River at the gaging station located one mile east of Billings indicate the maximum discharge observed at that point to be 64,800 c.f.s. on June 27, 1944, the minimum discharge to be 430 c.f.s. on December 12, 1932, and a nineteen year average flow of 6,496 cubic feet per second.

Big Horn River

The Big Horn River is formed by the Wind and Popo Agie Rivers near Riverton, Wyoming and flows north and northeasterly for about 250 miles to its confluence with the Yellowstone River. Tullock Creek is the main tributary to the Big Horn from Treasure County.

Available records of flow for the Big Horn are as follows: Drainage area of 20,700 square miles at an average elevation of approximately 5,000 feet. Water stage recordings 4½ miles above the mouth (see page 12 Part II), show the maximum discharge to be 26,200 c.f.s. on June 24, 1947, minimum discharge to be 756 c.f.s on December 13, 1950, and an average flow of 4,350 cubic feet per second over a five year period.

It should be pointed out that water gaging records are considered very good except during periods of ice effect or during extreme flood conditions, when the flow must be estimated from gage heights by projection of the discharge curves. For all normal or near normal flow the averages over a period of years present a very accurate picture of the actual stream flow at a given point.

In conclusion, Treasure County's water supply may be called adequate to supply present and contemplated future needs in the areas served by the Big Horn and Yellowstone Rivers. The remainder of the county may be classed as intermittent or dry in respect to available water for the purpose of irrigation. Conservation and reclamation plans for the future will undoubtedly place a large portion of this land under more adequate irrigation facilities. The residents of the area fully realize the importance of such measures in securing their future livelihood and are cooperating in every way to help bring the proposed plans into actuality. Many farms in the area are developing wells and sprinkler systems which are very well adapted

to the type of land in this area. Treasure County, therefore, is keeping abreast of the latest developments and is doing its share in the all important Water Conservation Program which means so much to the future economy of Montana.

SOIL CONSERVATION DISTRICTS

A Soil Conservation District is a legal subdivision of the State, established by the farm and ranch owners and operators, which permits group action in dealing with the problems in soil erosion, moisture conservation, soil fertility, and land use.

The Montana State Soil Conservation District Law was passed by the 26th General Assembly on February 28, 1939, and gives the authority for organizing Soil Conservation Districts within the State. Under provisions of the Law no district can be formed unless the people want it, nor unless they register this want; first by petition, and later by a favorable vote of at least 65 percent of the qualified voters in the proposed district. The law also provides for the formation of a State Soil Conservation Committee, which assists in the organization of districts and also in securing cooperation from state and federal agencies.

The main governing body of a Soil Conservation District is the board of five supervisors who are elected by the people of the District. This board is empowered by law to study the conservation problems of the district and to formulate programs to deal with these problems. This Board may call upon local, state and federal agencies to assist in executing the districts program, and by applying to the Board of Supervisors, farmers and ranchers may obtain such technical assistance as the District may have without expense to the operator. The use of other facilities, such as earthmoving equipment, owned, leased or contracted by the District is made available at rates fixed by the Board of Supervisors.

In the State at the present time there are 56 Soil Conservation Districts organized, and 23 Cooperative State Grazing Districts receiving technical assistance from the Soil Conservation Service in conducting conservation programs.

TREASURE COUNTY SOIL CONSERVATION DISTRICT

Treasure County is served by the Treasure County Soil Conservation District which was organized on July 19, 1946. The District consists of 446,862 acres, the whole of Treasure County, except for the whole or parts of three Cooperative State Grazing Districts within the boundaries of the County. Approximately 160 farm and ranch operating units are within the district.

Soon after organization the supervisors entered into a 'Memoranda of Understanding' with the U. S. Department of Agriculture and the Soil Conservation Service. These agreements provided the basis under which technical assistance, materials, and equipment could be made available to Soil Conservation Districts organized under Montana laws. Technicians thus obtained are used by the District to make soil, topographical, forage and other inventories in order to get basic land facts. After the inventories are made, conservation plans are developed based on these facts. Practices then are laid out and established on the farmer's land based on his land's capability and need.

Treasure County Soil Conservation District's annual work plan has stressed guidance in proper land use and in the establishment of conservation practices to most adequately and wisely use the soil and water resources available within the county. Conservation work on the irrigated portion of the District has consisted to a large extent in the following practices: developing and improving irrigation systems, installation of control structures, construction of drainage works on seeped lands, land levelling, construction of new and improved field and supply ditches, and lay out of border dike irrigation.

Treasure County Soil Conservation District sponsored the study made by the Soil Conservation Service that resulted in the engineering design and the on-site supervision required during the construction of the farm lateral and farm delivery system as well as the surface water disposal system for the Hysham Bench Water Users' Association. This undertaking while not completed has delivered water satisfactorily to users the past two irrigation seasons. A comprehensive drainage plan for the Rancher community has been developed and to date, three of the five major drainage ditches have been completed, with results that indicate the early reclamation of the deteriorated areas. Other groups of farmers have been aided in their problems through the efforts of the District.

A major portion of the District's irrigation conservation activities has been confined to the individual farm enterprise rather than with organized groups. Planning of irrigation conservation with farmers is not completed at present but is being done as rapidly as basic information can be secured.

SUMMARY OF IRRIGATED LAND BY RIVER BASINS IN THE FOLLOWING COUNTIES COMPLETED TO DATE

Big Horn, Carbon, Custer, Golden Valley, Meagher, Musselshell, Park, Rosebud, Stillwater, Sweet Grass, Treasure, Wheatland, and Yellowstone

RIVER BASIN	Present Irrigated Acres	Irrigable Acres Under Present Facilities	Maximum Irrigable Acres
Missouri River Drainage Basin			
***Missouri River**	3,657	1,290	4,947
Smith River	30,304	18,398	48,702
Musselshell River	64,789	57,870	122,659
Total	98,750	77,558	176,308
Yellowstone River Drainage Basin			
Yellowstone River	223,457	52,550	275,907
Shields River	29,252	6,850	36,102
Big Timber Creek	10,378	9,234	19,612
Boulder River	13,415	2,742	16,157
Sweet Grass Creek	18,594	23,006	41,600
Stillwater River	11,661	3,459	15,120
Rosebud River	15,828	12,944	28,772
Clark's Fork River	33,286	7,328	40,614
Rock Creek	58,482	16,867	75,349
Big Horn River	48,261	15,735	63,996
Little Big Horn River	17,134	9,844	26,978
Tongue River	22,137	7,479	29,616
Powder River	8,264	1,804	10,068
Grand Total Yellowstone River Basin	510,049	169,842	679,891
Grand Total Missouri River Basin	98,750	77,558	176,308
Grand Total in the counties completed to date	608,799	247,400	856,199

It was necessary to cover 12,818,862 gross acres in the above basins in order to complete the survey.

*Names of streams indented on the lefthand margin indicate that they are tributaries of the first stream named above which is not indented.

IRRIGATION SUMMARY OF TREASURE COUNTY BY RIVER BASINS

	Present Irrigated Acres	Irrigable Acres Under Present Facilities	Maximum Irrigable Acres
REGULAR IRRIGATION—Yellowstone River Basin			
***Yellowstone River**	17,990	5,423	23,413
Big Horn River	1,345	567	1,912
Sarpy Creek	5	15	20
Total in Yellowstone River Basin (Regular)	19,340	6,005	25,345
FLOOD IRRIGATION—Yellowstone River Basin			
Yellowstone River	0	0	0
Big Horn River	0	0	0
Tullock Creek	0	289	289
East Lightning Creek	0	28	28
Alkali Creek	25	0	25
North Fork Alkali or Injun Creek	72	0	72
Muggins Creek	299	14	313
West Fork Muggins Creek	33	0	33
Willow Creek	9	0	9
McConkey Creek	20	0	20
Box Elder Creek	0	0	0
Unnamed Coulee	37	0	37
Sarpy Creek	576	202	778
Beaver Creek	53	0	53
East Bear Creek	15	0	15
Koskie Coulee	66	0	66
Sweetser Coulee	0	70	70
Unnamed Coulees	87	29	116
Butte Creek	65	36	101
Unnamed Coulee	0	8	8
Total in Yellowstone River Basin (Flood)	1,891	706	2,597
Grand Total of Regular and Flood Irrigation Yellowstone River Basin in Treasure County	21,231	6,711	27,942

*Names of streams indented on the lefthand margin indicate that they are tributaries of the first stream named above which is not indented.

BOX ELDER (MUTUAL) DITCH

The lands now under the Box Elder Mutual Ditch were first irrigated by the Hysham Co-operative Ditch Company. On December 21, 1907, the Hysham Co-operative Ditch Company filed on 5,000 miner's inches of water to be diverted from the Yellowstone River. The date of first use was December 6, 1907. The notice of appropriation is on file in Book 1, Page 38 of Water Right Records in the Treasure County Courthouse.

The Box Elder Irrigation District was created in 1919 and bonds were issued for $65,000. The District acquired by purchase the water right filed by the Hysham Co-operative Ditch Company dated December 6, 1907. The notice of appropriation for the Box Elder Irrigation District is on file in Book 1, Page 155 of Water Right Records in the Treasure County Courthouse. The District is located in the immediate vicinity of Hysham in Sections 4, 5, 8, 9 and 10, Township 6 North, Range 36 East.

On January 10, 1920, the Box Elder Irrigation District appropriated and filed on 5,000 miner's inches of water to be diverted from the Yellowstone River at a point set forth in the appropriation made by the Hysham Co-operative Ditch Company and described therein as being on the east bank of the Yellowstone River in Lot 2, Section 13, Township 6 North, Range 35 East. The diversion point was changed to Lot 9 of Section 11 in the same township and range, a distance of about one-half mile down the river to the head gate of the Yellowstone Irrigation District. The water appropriated and used upon the lands herein set forth is to be conveyed by gravity through the Yellowstone Irrigation District canal to a point in the southeast quarter of the northeast quarter of Section 9, Township 6 North, Range 36 East, a distance of approximately one mile to the intake of the district canal, then through this canal for a distance of 800 feet to the pump house. From this point the water is raised to sufficient height by two 20 inch centrifugal pumps and discharged into the main canal, which will irrigate the same lands as heretofore irrigated by the Hysham Co-operative Ditch Company.

The first five and one-half miles of the Yellowstone Irrigation District canal is used jointly by the two ditch systems, with sufficient carrying capacity to take care of the water needs of both. At a point one-half mile east of the town of Hysham the Box Elder Ditch maintains a forebay diversion canal one-quarter of a mile long from the Yellowstone Irrigation District canal to the pumping plant. This plant maintains two vertical, mixed flow, propeller type pumps operated by 100 and 60 horse power electric motors respectively. Water is lifted through two pipes about 20 feet into the main Box Elder Ditch. The original pump site, as mentioned in the appropriation, has been moved about 100 feet closer to the main canal and the old pumps have been replaced by new pumps. The main canal is located on a bluff 20 feet above the pumping plant. At this high point the canal runs on a grade in opposite directions—north and east for a distance of one and one-half miles and northwest and west two and three quarter miles.

The Box Elder Irrigation District came to an end some twenty years ago when the entire project went to tax deed. At that time the Federal Land Bank and two or three remaining farmers worked out a plan to buy the land back from the County. No record was found whereby the Box Elder Irrigation District was ever dissolved; however, since about 1929 the farmers under this District have operated the system as a mutual ditch. By working together and contributing much labor they have kept this project in operation.

The Box Elder Mutual Ditch pays $600.00 per year to the Yellowstone Irrigation District for the right to convey water through their canal system. Water charges are $2.50 per irrigated acre for the eleven water users under this system. One additional water user buys water for two acres and is charged a flat rate of $8.00.

In 1951, there were 1,012 acres irrigated with 180 acres potentially irrigable under the canal system, or a maximum irrigable acreage of 1,192 under the Box Elder Mutual Ditch. (See map in Part II, Page 8).

BIG HORN - TULLOCK PROJECT

Lands under the Big Horn-Tullock Project are located along the south side of the Yellowstone River, east of the Big Horn River and immediately below its mouth, in Treasure County, Montana. The town of Big Horn is in the heart of the irrigable area.

The first irrigation development of the land now occupied by the Big Horn-Tullock Project was made by the Big Horn-Tullock Ditch Company in the year 1909. The Company was formed by resident land owners in the area and incorporated on January 7, 1909 for a period of 40 years, with a capital stock of $20,000. On February 8, 1909, the Company filed an appropriation for 62½ cubic feet of water to be diverted from a slough or branch of the Big Horn River in the northwest quarter of Lot 14, Section 3, Township 4 North, Range 34 East. The purpose was for domestic, agriculture, manufacturing, and other useful purposes. The system was described as a dam 460 feet long and 20 feet high with a ditch or canal 10 feet wide at the bottom—said ditch being about 6 feet deep at the point of diversion, which is sufficient to carry and conduct the water herein appropriated. The notice of appropriation is on file in Volume 1, Page 53 of Water Rights, in the office of the Clerk & Recorder of Treasure County, Montana.

Although no record is available whereby the Big Horn-Tullock Ditch Company was ever dissolved, it became necessary for the people in the area to create the Big Horn-Tullock Irrigation District and reclaim the lands under the Big Horn Tullock Ditch Company. The Big Horn-Tullock Irrigation District was established and organized by a decree of the District Court on August 4, 1919. The water right of February 8, 1909 was conveyed by the Big Horn-Tullock Ditch Company to the Big Horn-Tullock Irrigation District by deed, and is recorded in Volume 1, Page 212 of Water Rights, in the records of Treasure County, Montana, and which water right was thereafter conveyed to D. M. Manning and Guy L. Bradbrook by deed from the Big Horn-Tullock Irrigation District, which is now on record in Volume 5, Page 246 of Deeds, in the records of Treasure County.

On November 17, 1919, a bond issue of $75,000 was authorized and sold by the District. Funds obtained were used to build a new diversion dam and to rebuild part of the old canal system. In 1921 the diversion dam washed out, and the next year a pumping plant was installed about one mile down the river from the original intake to pump water into the canal, but due to excessive operation and maintenance cost of inadequate machinery this enterprise was abandoned. In about 1929 Treasure County took tax title to all the lands under the District, and for the next seven or eight years the lands under the District lay dormant.

On April 2, 1938, D. M. Manning and Guy L. Bradbrook bought up all the outstanding Bonds of the Big Horn-Tullock Irrigation District and secured a clear title to the land and irrigation

system under the District. In 1940, the same D. M. Manning and Guy L. Bradbrook began the construction and rehabilitating of the Big Horn-Tullock Project. The construction features on the project consist of a diversion dam across the Big Horn River, rehabilitating the old canal system, replacement of a syphon across Tullock Creek, and the installation of a pumping plant.

The construction of the diversion dam consisted of driving 200 steel railroad rails to which were anchored bundles of brush weighted with rock. Both faces and the top of the dam were covered with concrete. The spill section of the dam was constructed with post holes to allow for the erection of 3 foot flashboards. The headworks were built with reinforced concrete and contain 8 foot by 3 foot Taintor gate. Total length of the dam is 210 feet and the maximum height above the natural stream bed is approximately 8 feet. The main canal is 7.25 miles long and has a carrying capacity of 50 second feet. The old syphon across Tullock Creek was replaced with a new inverted syphon of 48 inch diameter concrete pipe. Although the original plans called for only one pumping plant, two low lift pumping stations are now operating on the project. The first low lift pumping plant is located near the head of the project. This pumping unit supplies water for 119 acres above the main canal. The second pumping plant, located in the southwest quarter of the northeast quarter of Section 26, Township 5 North, Range 34 East, consists of two low lift pumping units. The first pumps water from a sump located on the main canal, while the second is located just above the main canal and pumps water from the relift canal. Future plans call for an extension of the second relift canal, as only 245 acres are now irrigated under both pumping systems.

To obtain the necessary funds to finance this project the State Water Conservation Board required the formation of the Big Horn Tullock Water Users' Association and the sale of 1300 miner's inches of Water Purchase Contracts (see page 29). The Big Horn-Tullock Water Users' Association, a Montana Corporation, was formed by the land owners and prospective water users to operate and maintain the project. The Association requested the State Water Conservation Board to advance the cost of the materials and supplies necessary to construct the diversion dam and to rehabilitate the canal in a sum not to exceed $32,000—this sum being the estimated cost as made by the State Water Conservation Board. To secure the necessary funds to be advanced, the Big Horn-Tullock Water Users' Association entered into a Water Marketing Contract (see page 29) with the Board, whereby it agreed to pay the Board $1,300 on December 15, 1941, and every year thereafter to and including December 15, 1946, and the sum of $1,950 on December 15, 1947, and each and every year thereafter to and including December 15, 1977, plus such additional amount as may be due in excess of said amount as evidenced by outstanding Water Purchase Contracts. To provide the Association with funds to meet this obligation, the Association entered into Water Purchase Contracts with the individual water users in the aggregate amount of 1300 miner's inches at a rate of $1.00 per miner's inch for the period of 1942 to 1946 inclusive, and $1.50 per miner's inch for the period 1947 to 1977 inclusive. The additional 700 acres of irrigable land available by the installation of a pumping unit would require an additional 700 miner's inches; however, the contracts for 1300 miner's inches will provide sufficient funds to pay interest on the principal of the monies advanced by the State Water Conservation Board. As evidence of this advance, the State Water Conservation Board issued its Water Conservation Revenue Bonds, Series "X", in the sum of $32,000 payable in 35 years with a redemption provision, and interest at 4% per annum—said Bonds being dated January 1, 1941.

The Project first operated during the season of 1941 and has been in continuous operation ever since. The unit of measurement of water on this project, which is used as a basis for water sales, is the miner's inch instead of the acre foot.

In 1951, there were 1,345 acres irrigated with 567 acres potentially irrigable under the canal system, or a maximum irrigable acreage of 1,912 under the Big Horn-Tullock Project. (See map in Part II, Pages 10, 12).

ARTICLES OF INCORPORATION
of
BIG HORN-TULLOCK WATER USERS' ASSOCIATION

KNOW ALL MEN BY THESE PRESENTS: That we, the undersigned, pursuant to and in conformity with the provisions of Chapters 12 to 23, Civil Code, Revised Codes of Montana, 1935, and Acts amendatory thereof or supplemental thereto, associate ourselves together, not for profit, and do hereby adopt the following Articles of Incorporation:

ARTICLE I

The corporate name of this Corporation is hereby declared to be Big Horn-Tullock Water Users' Association.

ARTICLE II

The objects and purposes for which this Corporation is formed are as follows:

1. To appropriate, purchase, market, sell, pump, divert, develop, furnish, distribute, lease, and dispose of the waters of the Big Horn River and tributaries, which will be diverted from said stream by a dam, diversion works and canal located in the NW¼ of the SE¼ of Section 10, Township 4 North, Range 34 East, and such other structures as may be necessary to carry out the purposes of the Association and the diversion of water from the Big Horn River and its tributaries of the aforesaid stream, and from all other available sources of supply, together with the return flow of all of the foregoing waters furnished or supplied by seeping or over-flowing from the previous place of use of such waters and the waters from other dams, reservoirs, diversion canals, distributing canals, laterals, ditches, pumping units, mains, pipe lines and water works systems; said waters to be used for irrigating lands adjacent to and below said dams, reservoirs, laterals and canals and for other useful and beneficial purposes.

2. To enter into and carry out agreements with the State of Montana, the State Water Conservation Board, the United States of America, or any instrumentality or agency thereof, or any person, firm, association, corporation, private, public or municipal, with reference to the purchasing, marketing, furnishing, distributing and selling of the aforesaid waters, and to the privilege of obtaining such waters when available; and the diversion, development, disposition, and utilization of such waters; the charging, collecting and disposition of rents and revenues for such waters and privileges; the operation, maintenance, repair, alteration, construction, reconstruction, and supervision of the means of conserving and distributing such waters.

3. To construct, reconstruct, maintain, repair, alter, use, control and operate dams, reservoirs, irrigation works and systems, drainage works and systems, diversion canals, distributing canals, lateral ditches, pumping ditches, pumping units, mains, pipe lines, waterworks systems, and other means of conserving and distributing the aforesaid waters.

4. To lease, sell, or otherwise dispose of water, water rights, lands, easements and/or property which it may acquire.

5. To acquire, own, and hold such real and personal property as may be necessary or convenient for the transaction of its business.

6. To incur indebtedness upon its bonds, notes, contracts, or other evidences of indebtedness, and to secure the same by mortgages, deeds of trust, pledges of any or all of its revenues and contracts, or in any other manner subject, however, to the approval of any such indebtedness by resolution of the State Water Conservation Board.

7. To acquire, hold, and dispose of stock in other corporations, domestic or foreign.

8. To acquire by purchase, forfeiture, or in any other legal manner, shares of the Capital Stock of this Corporation, and to acquire and exercise options thereon, and to dispose of, re-issue, or cancel same as the Board of Directors may determine.

9. To have and exercise all the powers, and to perform any and all acts necessary, convenient, or appropriate, to carry out any one or more of the said purposes or anything incident thereto, or which shall at any time appear conducive or expedient for the protection or benefit of the Association or its shareholders, and to that end to enter into any contract, agreement, or other arrangement with the State of Montana, the State Water Conservation Board, the United States of America, or any instrumentality or agency thereof, or any person, firm, association, corporation, private, public or municipal, or any state or foreign government.

10. To make and promulgate By-Laws for the government and control of this Corporation. The By-Laws, or amendments thereto, adopted by the Board of Directors shall be, and become, effective only after their approval by the State Water Conservation Board.

11. The powers herein granted and conferred shall be exercised only with the approval of the State Water Conservation Board.

ARTICLE III

The principal place of transacting the business of the Corporation shall be at Big Horn, in the County of Treasure, State of Montana.

ARTICLE IV

This Corporation shall continue in existence for the term of forty (40) years from and after the filing of these Articles of Incorporation.

ARTICLE V

The number of directors who shall manage the affairs of this Corporation shall be Three (3), and the names and residences of those who are appointed for the first three months, and until their successors are elected and qualified, are as follows:

Name	**Residence**
Guy L. Bradbrook	Hysham, Montana
R. A. Sharp	Hysham, Montana
Anton Bogunovich	Big Horn, Montana

ARTICLE VI

The Capital Stock of said Corporation shall be Two Thousand and No/100 Dollars, which shall be divided into Two Thousand (2,000) Shares of the par value of _____ each. Each shareholder of the Capital Stock of this Corporation shall be entitled to one (1) vote for each share of stock owned by him.

Capital shares of the stock of this Corporation shall be subject to purchase, sale, or forfeiture under such terms and conditions as are provided by the By-Laws of the Corporation and its subscription and pledge agreements with shareholders. Except with the consent of the Corporation, no stock of this Corporation shall be transferred on the books of the Corporation so long as the owner or owners thereof are obligated in any way to the Corporation, whether such obligations be matured or unmatured, or be under a subscription agreement or note, a water purchase contract or otherwise.

The private property of the Stockholders of this Corporation shall not be liable for the obligations of the Corporation except as in the By-Laws of the Corporation otherwise provided.

ARTICLE VII

That the amount of the Capital Stock actually subscribed is Forty Six and No/100 ($46.00) Dollars, as follows:

Name	Amount
Guy L. Bradbrook	Ten Dollars ($10.00)
Ed Verhelst	Ten Dollars ($10.00)
Anton Bogunovich	Ten Dollars ($10.00)
F. A. Brown	Ten Dollars ($10.00)
R. A. Sharp	Six Dollars ($6.00)

Witness our hands and seals this 27th day of September, A.D. 1940.

(Signed) Guy L. Bradbrook
Ed Verhelst
Anton Bogunovich
F. A. Brown
R. A. Sharp

HYSHAM PUMPING PROJECT

The Hysham Pumping Project is located on the south side of the Yellowstone River, and includes lands lying east, west, and south of the town of Hysham in Treasure County, Montana.

On September 19, 1945, the State Water Conservation Board filed a declaration of intention to appropriate 200 C.F.S. of the waters of the Yellowstone River and tributaries. Following the declaration, the Board appropriated 200 C.F.S. of the waters of the Yellowstone River. This declaration is on file in Volume 1 of Water Rights, Page 187, in the office of the Clerk & Recorder of Treasure County.

In the spring of 1948, the State Water Conservation Board began construction of the Hysham Pumping Project to make water available to approximately 7500 acres of new land in the vicinity of Hysham. The initial project as planned by the State Board did not include any plan for lateral ditches and structures to distribute irrigation water, or for the disposal of excess surface water.

The Hysham Water Users' Association was incorporated under the laws of Montana on May 27, 1946, as required by the Board. This Association was formed by the land owners and prospective water users in the area to operate and maintain the project. Water Purchase Contracts (see page 29) with the individual water users were secured and approved by the Association and the State Water Conservation Board. Bids for construction of the main canals and pumping plants were received and the contract awarded March 11, 1948. The low bidder was D. M. Manning of Hysham. Construction work commenced and was substantially accepted as complete by the Board on December 1, 1949.

Under the terms of the Water Marketing Contract (see page 29) between the Hysham Water Users' Association and the Board, the Association agreed to pay the Board an amount equivalent to $1.75 per acre for contracts in effect in any one year, with payments to continue for fifty years.

The irrigation works as constructed by the State Water Conservation Board consist of a power transmission line, two (2) pumping plants to raise the water from the Yellowstone River, together with the main canals which deliver water to the area.

Due to a shortage of power facilities in the vicinity of Hysham, it was necessary for the State Water Conservation Board to build 12.36 miles of transmission line (33,000 volts) from Sanders to Myers and 1.09 miles of underbuilt line from Myers to the relift station. The low bidder was Line Builders Inc., of Billings, Montana, and the Board awarded the contract to said contractor on October 20, 1949. Construction was accepted by the Board as complete on March 4, 1950.

Water supply for the project is maintained by a direct diversion canal from the Yellowstone River. The point of diversion is described as on the east bank of the Yellowstone River in the southwest quarter of the southeast quarter of Section 21, Township 6 North, Range 35 East. The head gate of the diversion canal is constructed of reinforced concrete and is located on the main river channel where an adequate water supply will be available to the project throughout the entire irrigation season.

Two pumping plants are maintained on the project. The main pumping plant is located on the diversion canal approximately .35 of a mile east of the head gate near the railroad station of Myers in the southeast quarter of the southeast quarter of Section 21, Township 6 North, Range 35 East. This plant consists of two 350 H.P. electric pumps with capacities of 19,500 G.P.M. each, pumping against a static head of 57.02 feet. From this pumping plant the main canal, with a capacity of 133 second feet, traverses the project in an easterly direction for a distance of 17.9 miles. Bulit in the canal system are several large structures. On the main canal, these works include a metal flume 7 feet in diameter and 60 feet long across Buckingham Coulee; another metal flume 7 feet in diameter and 60 feet long across Box Elder Creek (this flume contains a 20 foot section in the center span with a 30 inch sluice gate); and a 30 inch diameter pre-cast concrete syphon 80 feet long across Sarpy Creek. The relift pumping plant is located on the main canal about one mile east of the primary one and maintains two 100 H.P. electric motors with capacities of 6,750 G.P.M. each, pumping against a static head of 45.11 feet. The relift canal has a carrying capacity of 47 second feet and traverses in an easterly direction for a distance of 6.3 miles. The large structures on the relift canal consist of a 36 inch diameter pre-cast concrete syphon 365 feet long across Buckingham Coulee, and a pre-cast concrete syphon 24 inches in diameter 265 feet long across Box Elder Creek. All structures in the canal system are reinforced concrete or metal pipe material.

In April, 1948, the Hysham Water Users' Association requested the Treasure County Soil Conservation District to assist the land owners in preparing a plan for a distribution system for their project as a necessary part of the conservation plan and program of the District. Under Federal policy, technical assistance is available to Soil Conservation Districts from the Soil Conservation Service in planning works and measures. This plan provided for the building of the lateral ditches and structures to distribute irrigation water to the project lands, and for the disposal of excess surface waters. The plan as set forth by the Soil Conservation Service was accepted by the Hysham Water Users' Association and covers generally all the essential requirements such a system should meet. During the process of planning the distribution system, all the information obtained by the State Water Conservation Board in connection with the main project was made available to the Soil Conservation Service. Close co-operation be-

tween the Soil Conservation Service and the engineers of the State Board was maintained throughout the work.

The project first operated during the year of 1950, and all water purchasers with contracts in effect have been delivered their water without difficulty. The unit of measurement of water on this project, which is used as a basis for water sales, is for each acre of land irrigated—one acre being equivalent to one and one-half acre feet of water.

Funds advanced to construct the project were provided out of the appropriation by the State Legislature for post-war construction, and no loan or grant was made or bonds issued.

Future plans by the State Water Conservation Board call for the installation of one pump of the same size and capacity in each of the pumping stations as additional lands under the project are developed and the demand for water increases. Late this year the Hysham Water Users' Association requested the Board for an additional pump to be installed in the main pumping plant to supply water to several hundred additional acres of land under the main canal. This request has been approved by the State Water Conservation Board.

In 1951, there were 5,356 acres irrigated with 1,724 acres potentially irrigable under the canal system, or a maximum irrigable acreage of 7,080 under the Hysham Pumping Project. (See map in Part II, Pages 7, 8, 9).

ARTICLES OF INCORPORATION
of
HYSHAM WATER USERS' ASSOCIATION

KNOW ALL MEN BY THESE PRESENTS: That we, the undersigned, pursuant to and in conformity with the provisions of Chapters 12 to 23, Civil Code, Revised Codes of Montana, 1935, and Acts amendatory thereof or supplemental thereto, associate ourselves together, not for profit, and do hereby adopt the following Articles of Incorporation:

ARTICLE I

The corporate name of this Corporation is hereby declared to be Hysham Water Users' Association.

ARTICLE II

The objects and purposes of this Corporation are as follows:

1. To appropriate, purchase, market, sell, pump, divert, develop, furnish, distribute, lease and dispose of the waters of the Yellowstone River and tributaries, which will be diverted from said river by a diversion canal and head gate located on the east bank thereof and approximately on the section line between Sections 21 and 28, Township 6 North, Range 35 East at the mid-section line, Treasure County, Montana, and such other structures as may be necessary to carry out the purposes of the Association, and waters from all other sources of supply, together with the return flow of all the foregoing waters furnished or supplied by seeping or overflowing from the previous place of use of such waters, and the waters from other dams, reservoirs, diversion canals, distributing canals, lateral ditches, pumping units, mains, pipe lines and water works systems.

2. To enter into and carry out agreements with the State of Montana, the State Water Conservation Board, the United States of America, or any instrumentality, or agency thereof, any person, firm, association, corporation, private, public or municipal with reference to the purchasing, marketing, furnishing, distributing, and selling of the aforesaid waters, and of the privilege of obtaining such waters available and the diversion, development, disposition, and utilization of such waters, the charging, collecting and

disposition of rents and revenues for such waters and privileges, the operation, maintenance, repair, alteration, construction, reconstruction and supervision of the means of conserving and distributing such waters.

3. To construct, reconstruct, maintain, repair, alter, use, control and operate dams, reservoirs, irrigation works and systems, drainage works and systems, diversion canals, distributing canals, lateral ditches, pumping ditches, pumping units, mains, pipe lines, water works systems and other means of conserving and distributing the aforesaid waters.

4. To lease, sell or otherwise dispose of water, water rights, lands, easements or property which it may acquire.

5. To acquire, own and hold such real and personal property as may be necessary or convenient for the transaction of its business.

6. To incur indebtedness upon its bonds, notes, contracts or other evidence of indebtedness, and to secure the same by mortgages, deeds of trust, pledges of any or all of its revenues and contracts or in any other manner, subject, however, to the approval of any such indebtedness by resolution of the State Water Conservation Board.

7. To acquire, hold and dispose of stock in other corporations, domestic or foreign.

8. To acquire by purchase, forfeiture or in any other legal manner, shares of the Capital Stock of this corporation, and to acquire and exercise options thereon, and to dispose of, re-issue or cancel same as the Board of Directors may determine.

9. To have and exercise all the powers and to perform any and all acts necessary, convenient or appropriate to carry out any one or more of the said purposes or anything incident thereto, or which shall at any time appear conducive or expedient for the protection or benefit of the Association or its shareholders, and to that end to enter into any contract, agreement or other arrangement with the State of Montana, the State Water Conservation Board, the United States of America or any instrumentality or agency thereof, or any person, firm, association, corporation, private or municipal, or any state or foreign government.

10. To make and promulgate By-Laws for the government and control of this corporation. The By-Laws or amendments thereto adopted by the Board of Directors shall be and become effective only after their approval by the State Water Conservation Board.

11. The powers herein granted and conferred shall be exercised only with the approval of the State Water Conservation Board.

ARTICLE III

The principal place of transacting the business of the corporation shall be at Hysham in the County of Treasure, State of Montana.

ARTICLE IV

This corporation shall continue in existence for the term of forty (40) years from and after the filing of these Articles of Incorporation.

ARTICLE V

The number of directors who shall manage the affairs of this corporation shall be five (5), and the names and residences of those who are appointed for the first three months and until their successors are elected and qualified are as follows:

Name	**Address**
C. L. Wright	Hysham, Montana
R. F. Kimball	Hysham, Montana
H. A. Mackley	Sanders, Montana
M. Zent	Hysham, Montana
W. G. Miller	Hysham, Montana

ARTICLE VI

The Capital Stock of said corporation shall be $10,000.00, which shall be divided into ten thousand (10,000) shares of the par value of one dollar ($1.00) each. Each shareholder of the Capital Stock of this corporation shall be entitled to one vote for each share of stock owned by him.

Capital shares of the stock of this corporation shall be subject to purchase, sale or forfeiture under such terms and conditions as are provided by the By-Laws of the Corporation, and its subscription and pledge agreements with shareholders. Except with the consent of the corporation, no stock of this corporation shall be transferred on the books of the corporation so long as the owner or owners thereof are obligated in any way to the corporation, whether such obligations to be matured or unmatured or be under a subscription agreement or note, a water purchase contract or otherwise.

The private property of the stockholders of this corporation shall not be liable for the obligations of the corporation except as in the By-Laws of the corporation otherwise provided.

ARTICLE VII

That the amount of the Capital Stock actually subscribed is $25.00 as follows:

C. L. Wright	$5.00
M. Zent	$5.00
R. F. Kimball	$5.00
W. G. Miller	$5.00
H. A. Mackley	$5.00

Witness our hands and seals this 27th day of May, 1946.

RANCHER DITCH COMPANY

The Rancher Ditch Company project is located on the north side of the Yellowstone River northwest of the town of Hysham in Treasure County, Montana. The Company was first incorporated on December 1, 1903. The purpose of this corporation was for constructing, maintaining, extending, and enlarging an irrigation ditch or canal, and to supply irrigation water from the Yellowstone River to and upon the lands under the project. The term of existence was for twenty years. The Ditch Company has filed two extensions to their charter since the first term of existence expired. On December 8, 1923, the Ditch Company filed an extension for twenty years, and on January 4, 1944, a second extension was filed for a period of forty years. No other changes or amendments were made in the original Articles of Incorporation. The Capital Stock of the Company is $20,000 with the stock being divided into 2,000 shares having a par value of $10.00 per share. One share of stock was issued for each two acres of irrigated land.

On January 5, 1904, the Rancher Ditch Company appropriated 6,000 miner's inches of water from the Yellowstone River. The point of diversion is described as being on the north bank in the northwest quarter of Section 23, Township 5 North, Range 34 East. This appropriation is on file in Book 1, Page 13 of Water Right Records in the Treasure County Courthouse. The same notice of appropriation is filed in the Rosebud County Courthouse in Book 1, Page 410 of Water Right Records.

The main construction features of the project consist of a diversion dam and the main canal system. The original dam built by the Company proved to be inadequate in providing the water users with a dependable supply of water during the irrigation season. In 1931, a new dam was built and paid for by making an assessment of $3.00 per each acre of irrigated land

under the canal system. The new dam was constructed by driving steel railroad rails into the river channel to which were anchored bundles of brush weighted with rock. Both faces and top of the dam were finished with concrete.

The main canal from the point of diversion to its terminus in Section 2, Township 6 North, Range 35 East is approximately 13 miles in length. There are two syphons in the canal system, both syphons are underground concrete structures and are located where the canal crosses Alkali and Muggins Creek. The canal has sufficient carrying capacity to supply water to all land under the project.

The lands irrigated under this system include all, or parts of, Sections 2, 11 and 14 in Township 5 North, Range 34 East; Sections 24, 25, 26 and 35 in Township 6 North, Range 34 East; Sections 2, 8, 9, 10, 11, 14 to 20 inclusive, and 29 and 30 in Township 6 North, Range 35 East.

At the present time the Rancher Ditch Company has no outstanding bonds or debts. Assessments on each share of stock for operation and maintenance varies from year to year. The Company may levy assessments every thirty days not to exceed 50c per share on each share of stock sold. Six assessments of 50c were made this year (1951). The amount of stock subscribed to and sold by the Company numbers 1954 shares, plus an additional 18 shares of stock leased.

In 1951, there were 4,954 acres irrigated with 835 acres potentially irrigable under the canal system, or a maximum irrigable acreage of 5,789 under the Rancher Ditch Company. (See map in Part II, Pages 6, 7, 10).

ARTICLES OF INCORPORATION
of
RANCHER DITCH COMPANY

KNOW ALL MEN BY THESE PRESENTS: That we, Ludwig Havermann, Elias Johnson, Robert J. Guy and Philip Isaac, all residents of Rosebud County and State of Montana, do by these presents pursuant to Division 1, Part IV, Title 1, Chapter 1 of the Civil Code of the State of Montana, entitled Corporations, and all laws of the Legislative Assembly of the State of Montana, supplementary to or amendatory thereof, associate ourselves together and form a corporation and for that purpose and to that end do hereby declare as follows:

First: The corporate name of said Company is hereby declared to be the "Rancher Ditch Company."

Second: The purpose for which said corporation is formed is for the construction, maintenance, extending and enlarging of an irrigation ditch or canal, and to own, control, use and operate the same, together with flumes, reservoirs, and appurtenances thereunto belonging or in any wise appertaining and for the purpose of supplying water from the Yellowstone River, in said County of Rosebud and State of Montana, for irrigation, domestic and other useful and beneficial purposes, to the persons, companies, and corporations owning or occupying lands lying thereunder and for such other legitimate and proper uses and purposes as are necessary to the encouragement of agriculture and horticulture in the valley of the Yellowstone River in said County of Rosebud, and the State of Montana, and for these purposes to own any and all property, real and personal, necessary to the proper maintenance of said ditch or canal and the business connected therewith. The stream from which the waters are to be diverted and used for the purpose aforesaid, is the Yellowstone River in the State of Montana, and the waters of said river appropriated, diverted and used as aforesaid, are taken from said stream at a point on the north bank thereof situate in the NE¼ of Section 23, Township 5 North, Range 34 East, thence running in a general northerly and northeasterly course through and across the region known as Pease Bottom, and near the foothills skirting said Pease Bottom, being about 10 miles in length and terminating at a point in the NE¼ of Section 19, Township 6 North, Range 35 East in said County of Rosebud and State of Montana.

Third: The place where the principal business of said corporation is to be transacted is Rancher, Montana.

Fourth: The term for which this corporation is to exist shall be 20 years.

Fifth: The number of directors of said corporation shall be five (5) and the names and residences of these who are hereby appointed for the first three months of said corporate existence and until their successors are elected and qualified are as follows:

Ludwig Havemann	Rancher, Montana
Elias Johnson	Rancher, Montana
Robert J. Guy	Rancher, Montana
Philip Isaac	Rancher, Montana
A. S. Shannon	Billings, Montana

Sixth: The amount of the Capital Stock of said Company is $20,000 divided into 2,000 shares of the par value of $10.00 each.

Seventh: The names of the persons who have actually subscribed for the capital stock of said Company and the amounts by them subscribed are as follows:

Herman Eldering	120 shares	$1200.00
Ludwig Havemann	240 shares	2400.00
Eilas Johnson	60 shares	600.00
A. S. Shannon	80 shares	800.00
Thomas W. King	30 shares	300.00
John V. Panwert	15 shares	150.00
Philip Isaac	60 shares	600.00
Robert J. Guy	60 shares	600.00
Mrs. Joseph Isaac	240 shares	2400.00
Henry Heynemann	40 shares	400.00
Bruno Heynemann	15 shares	150.00

Eighth: The stock of said corporation shall be assessable.

Dated December 1, 1903.

YELLOWSTONE IRRIGATION DISTRICT

In 1906, the Sanders-Howard Co-operative Ditch Company endeavored to irrigate the lands now occupied by the Yellowstone Irrigation District. The Company, on October 11, 1906, filed a notice of appropriation for 40,000 miner's inches of water to be diverted from the Yellowstone River in Lot 2 of Section 23, Township 6 North, Range 35 East. The date appropriated was given as October 10, 1906. The purpose was for domestic, agricultural, and other useful purposes. The system was described as a head gate of rock and concrete. The land description of intended place of use was given as a tract of land on the south side of the Yellowstone River between Myers Station on the Northern Pacific Railway and Armells Creek, in Townships 6 and 7 North of Ranges 36, 37, 38 and 39 East, containing approximately 30,000 acres. The notice of appropriation is on file in Book 1, Page 523 of Water Right Records, in the Rosebud County Courthouse.

The time of existence for the Company was short, and on August 3, 1907 the Sanders Co-operative Ditch Company was formed by Fred D. Herbold, James R. Thompson and John C. Lyndes. Said Company was incorporated under the laws of the State of Montana for $50,000.00, divided into 5,000 shares of a par value of $10.00 each. The stock was non-assessable. The corporation was formed to appropriate water, secure right-of-way, collect monies, and construct an irrigation system.

On December 13, 1907, the Sanders Co-operative Ditch Company filed on 1,000 cubic feet of water to be diverted from the Yellowstone River in Lot 8 of Section 11, Township 6 North, Range 35 East. The date appropriated was given as December 12, 1907. The purpose was to be for domestic, agricultural, manufacturing, and other useful purposes. The system was described as a head gate 32 feet wide and 14 feet high, marking place of commencement of canal. From this point the canal was to follow the Yellowstone River in an easterly direction for approximately 30 miles. The place of intended use was described as a tract of land situated on the south side of the Yellowstone River, under the line of that certain irrigating ditch or canal now being constructed by the Sanders Co-operative Ditch Company between Hysham Station on the Northern Pacific Railway and Armells Creek. Said tract of land was situated in Townships 6 and 7, North of Ranges 36, 37, 38, and 39 East, containing approximately 20,000 acres. This appropriation is on file in Book 1, Page 592 of Water Right Records in the Rosebud County Courthouse. The same notice of appropriation is filed in the Treasure County Courthouse in Book 1, Page 37 of Water Right Records. The appropriation is identical, except that the date of appropriation is given as September 2, 1907. This date of priority is the date accepted by the Yellowstone Irrigation District.

On June 11, 1909, the Yellowstone Irrigation District was created in accordance with and pursuant to the provisions of Chapter 146 of the Acts of the Eleventh Legislative Assembly of the State of Montana in the District Court of the Thirteenth Judicial District. On January 1, 1910, a bond issue of $250,000.00 was authorized and sold. Of this amount, $75,210.00 was paid to the Sanders Co-operative Ditch Company for their interest, canal right-of-way, and all water rights from the Yellowstone River. The deed transferring said rights from the Company to the District was dated July 5, 1910.

On January 1, 1918, a second bond issue for $150,000.00 was authorized and sold. This issue was made because a washout in the headworks of the canal system made it necessary for the District to change the first few miles of canal. A new steel flume was also constructed around Sanders Hill. In 1928, the bondholders agreed to a readjustment with the District, leaving a total indebtedness of $350,000.00. In 1934, the total indebtedness was $313,000.00, but through a compromise between the District and bondholders this amount was reduced to $177,500.00. For this amount a loan was granted by the R.F.C. No refunding bonds were isssued and the loan is to be paid on the basis of $3,500 on principal, plus interest of 4 per cent per year on all unpaid balances. In 1948, $20,143.70 worth of warrants were sold to pay for the construction of a new concrete lined canal around Sanders Hill; however, these warrants are now retired. Assessments for the year 1951 have been $3.50 per assessed irrigable acre. Of this amount, $2.00 has been applied to the R.F.C. loan, $1.00 for the operation and maintenance fund, and 50c paid to the repair fund. In addition to the regular assessments the District charges a flat fee of $1.50 per acre for those users who pump out of the main canal to lands not originally classified as assessable when the District was created.

The District is divided into two Soil Conservation Districts. The Cartersville-Thurlow District organized December 15, 1942 in Rosebud County, and the Treasure County District organized July 19, 1946 in Treasure County. As a result of the technical assistance given the District by these Soil Conservation Districts, much progress has been made in development work, such as canal relocation, drainage, land leveling, etc. Because of these improvements, the District re-classified its irrigable acreage in 1949. In addition to regular assessments, the District receives $600.00 per year from the Box Elder Ditch for the right to convey water

through their system. The Box Elder Ditch is operated as a separate system and has no connection with the Yellowstone Irrigation District.

In 1932, the Yellowstone Irrigation District constructed a rock filled, submerged diversion dam across the Yellowstone River in the southeast quarter of Section 11, Township 6 North, Range 35 East. At the east end of the dam the District maintains a reinforced concrete head gate with five screw type gates, with an estimated capacity of about 400 cubic feet. The canal at the head gate is about 40 feet wide. From this point, the main canal follows an easterly direction for about 28 miles on the south side of the Yellowstone River to Armells Creek. At the terminus, the canal is about 4 feet wide. In addition to the headworks, the principal structures are rectangular concrete syphons under Sarpy, Hay, and Reservation Creeks and Wyant Coulee. In 1948, the District relocated its main canal around Sanders Hill, replacing the old metal flume with a concrete lined canal. By doing this, the water shortage experienced by users on the lower end of the canal has been somewhat alleviated. The main canal, for the greater part, is in fair condition, but users claim it should be enlarged in order to carry enough water to meet the water demands during the peak of the irrigation season. As it is a hillside ditch for the greater part of its length, much seepage has occurred as a result of ditch leakage. Considerable drainage work has been accomplished by individual farmers, but no drainage district has been established.

The topography is favorable to irrigation. Water is taken by gravity from the Yellowstone River, and since construction of the diversion dam, the water supply is considered adequate during normal irrigation seasons.

The project is located in Treasure and Rosebud Counties on the south side of the Yellowstone River, and extends from a point three miles west of Hysham in Treasure County to Armells Creek in Rosebud County.

In 1951, there were 4,380 acres irrigated with 2,140 acres potentially irrigable under the canal system, or a maximum irrigable acreage of 6,520 under the Yellowstone Irrigation District. These figures include lands irrigated by pumping out of the main canal. Most of the potential acreage has been put out of production because of seepage . (See map in Part II, Pages 4, 7, 8, 9).

WATER MARKETING CONTRACT

This is an agreement between the Association and the State Water Conservation Board, whereby the Board agrees to sell to the Association all of the available water of the project, and the Association agrees to distribute same to water purchasers; and provides method of payment of sums due, levying of assessment for operation and maintenance cost, time of notification of such levy to be given water purchasers, time of default and remedies in the event of default.

WATER PURCHASE CONTRACT

This is a contract entered into between the individual water purchasers, the Association and the State Water Conservation Board, whereby, the individual agrees to purchase a definite amount of water, and to pay therefore a definite sum of money on or before a definite day of each year, until a definite future date; in addition to such definite annual sum the individual agrees to pay such additional sum or sums as may be required annually as his proportionate share of the cost of operation and maintenance of the Association. This contract is void unless the water purchaser executes a Subscription and Pledge Agreement.

WATER RIGHT DATA
TREASURE COUNTY APPROPRIATIONS BY STREAMS
YELLOWSTONE RIVER BASIN

STREAM	No. of Filings	Appropriations (Filings of Record) Miner's Inches	Cu. ft. per sec.	Acre Feet
***YELLOWSTONE RIVER, MAIN STREAM**	24	148,880	3,722.0	
Big Horn River	5	53,564	1,339.1	
Tullock Creek	13	4,760	119.0	Plus 50.0
Cole-Powell Creek	2	2,000	50.0	
Boshart Coulee	1	40	1.0	
East Lightening Creek	0	0	0	
Lightening or West Lightening Creek	2	1,000	25.0	Plus 49.3
Dago Coulee or Little Joe Creek	3**	200	5.0	
Pasco Coulee	1	120	3.0	
Unnamed Coulee	1	500	12.5	
Unknown Creek	0	0	0	
Unnamed Creek	2	160	4.0	
Cut-Off Creek	3	2,400	60.0	
Allens Coulee	0	0	0	
Pete's Gulch	1	1,000	25.0	
Edwards Coulee	4	2,300	57.5	
Alkali Creek	6	11,025	275.625	
North Fork Alkali Creek or Injun Creek	1	60	1.5	
Coulee Creek	1	25	.625	
Unnamed Creek	1	300	7.5	
Muggins Creek	6	4,280	107.0	
West Fork Muggins Creek	0	0	0	
Willow Creek	0	0	0	
Unnamed Creek	2	3,000	75.0	
Bone Coulee	0	0	0	
McConkey Creek (See Muggins Creek)	0	0	0	
Muggins Coulee	1	400	10.0	
Buckingham Coulee	0	0	0	
Higgins Spring	1	100	2.5	
Isaac Coulee	2	3,000	75.0	
Lone Pine Coulee	2	2,400	60.0	
Prairie Dog Coulee	1	2,000	50.0	
Wales Coulee	1	400	10.0	
McDonald Creek	1	2,000	50.0	
Dry Coulee	1	160	4.0	
Antelope Coulee	1	1,500	37.5	
North Antelope Coulee	2	2,700	67.5	
South Antelope Coulee	1	1,000	25.0	
Cowen Coulee (See Antelope Coulee)	0	0	0	
Box Elder Creek	13	10,200	255.0	
East Fork Box Elder Creek or Miller Coulee	1	500	12.5	
Unnamed Creek	1	20	.5	
Froze-to-death Creek	5	8,280	207.0	
Bitle Coulee	1	1,500	37.5	
Unnamed Creek	2	1,600	40.0	

*Names of streams indented on the lefthand margin indicate that they are tributaries of the first stream named above which is not indented.

WATER RIGHT DATA
TREASURE COUNTY APPROPRIATIONS BY STREAMS
YELLOWSTONE RIVER BASIN

(Continued)

STREAM	Appropriations (Filings of Record) No. of Filings	Miner's Inches	Cu. ft. per sec.	Acre Feet
Sarpy Creek	15	16,360	409.0	Plus 5.0
Horse Creek	0	0	0	
Beaver Creek	2	360	9.0	
South Beaver Creek	1	200	5.0	
East Bear Creek	1	100	2.5	
West Bear Creek	0	0	0	
West Corral Creek	3	2,000	50.0	
Corral Creek	1	1,000	25.0	
Koskie Coulee or Creek	1	1,000	25.0	
Sweetser Coulee	1	120	3.0	
Unnamed Creeks	9	3,400	85.0	Plus 100.0
Butte Creek	1	200	5.0	
Spring Coulee	1	500	12.5	
Deveney Coulee	0	0	0	
Patterson Creek	1	500	12.5	
Johnston Coulee	1	500	12.5	
Lost Coulee	1	0	0	85.0
Starved-to-death Creek	0	0	0	
Roach Coulee	1	150	3.75	
Hay Creek	2	1,100	27.5	
Armells Creek	0	0	0	
Branch of West Fork Armells Creek	1	100	2.5	
Unnamed Creek	1	100	2.5	
Unnamed Creeks	10	8,600	215.0	
TOTALS	170	309,664	7,741.6	Plus 289.3

**Two of these filings include all flood waters.

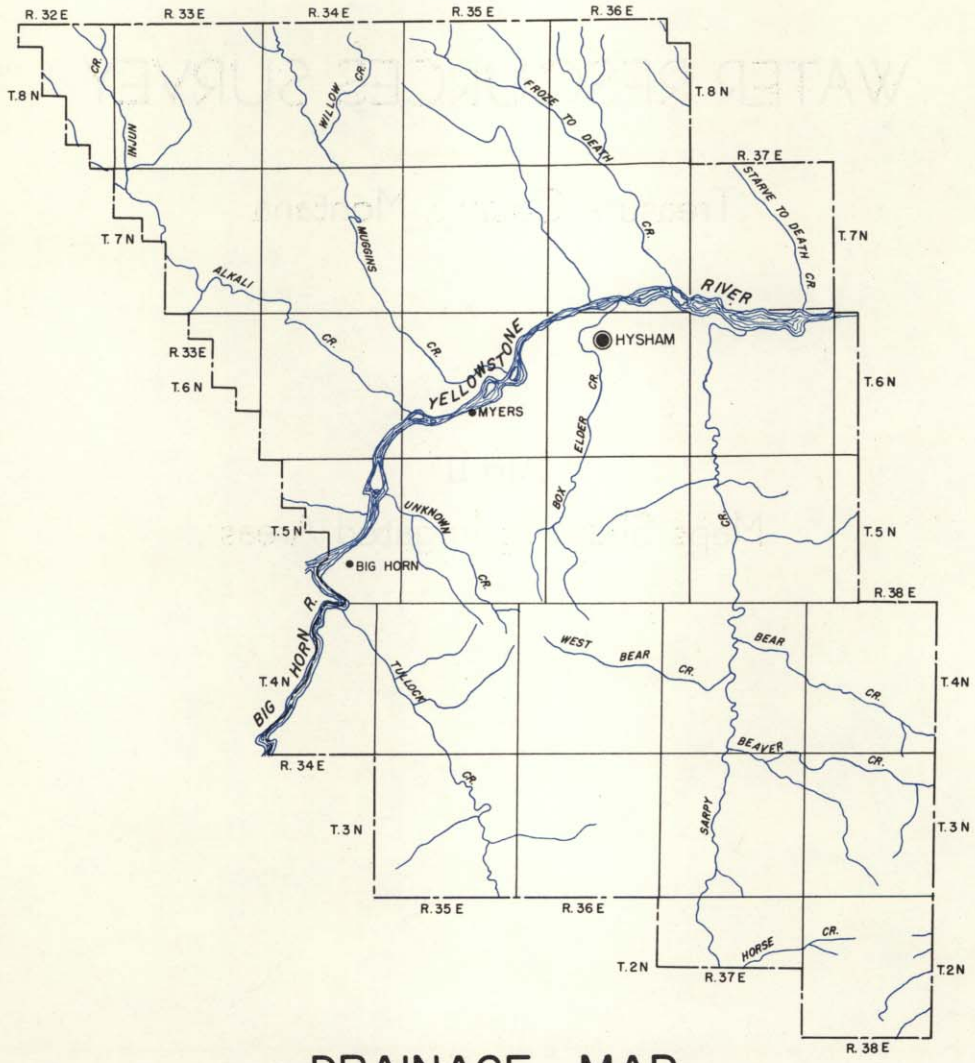
WATER RESOURCES SURVEY

Treasure County, Montana

Part II

Maps Showing Irrigated Areas

Published by
STATE ENGINEER'S OFFICE
Helena, Montana
December, 1951



DRAINAGE MAP
OF
TREASURE CO.

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MAP SYMBOL INDEX

BOUNDARIES

- COUNTY LINE
- NATIONAL FOREST LINE

DITCHES

- CANALS OR DITCHES
- DRAIN DITCHES
- PROPOSED DITCHES

STRUCTURES

- DAM
- DROP
- FLUME
- GAUGING STATION
- NATURAL CARRIER USED AS DITCH
- PUMP
- PUMP SITE
- RESERVOIR
- SIPHON
- STORAGE TANK
- WEIR
- WELL

TRANSPORTATION

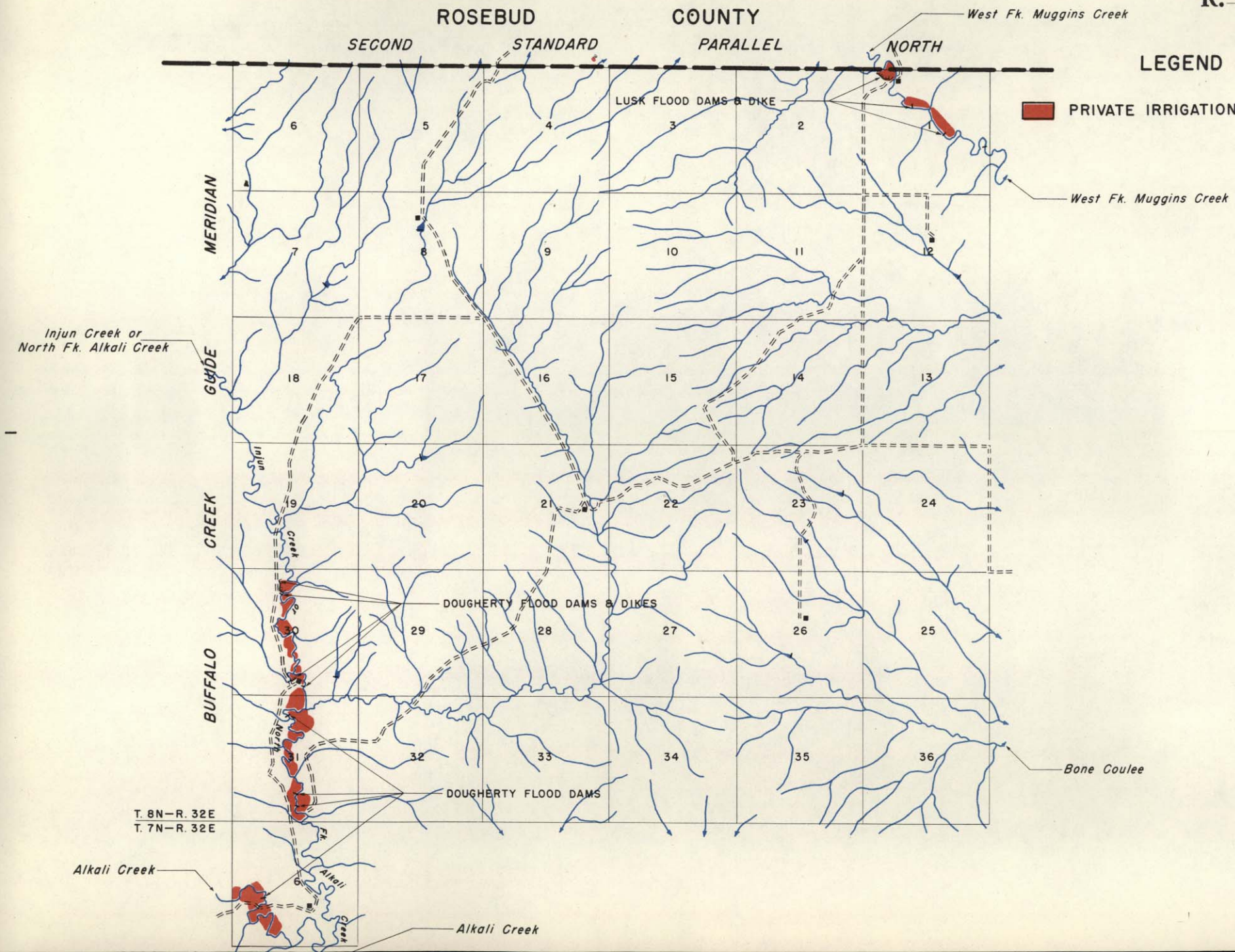
- COUNTY ROADS
- PAVED HIGHWAY
- RAILROADS
- STATE HIGHWAY
- U. S. HIGHWAY

UNITS

- AIRPORT
- CEMETARY
- COUNTY SEAT
- FAIRGROUND
- FARM OR RANCH UNIT
- FISH HATCHERY
- LOOKOUT STATION
- POWER PLANT
- RANGER STATION
- SCHOOL HOUSE
- SHAFT, MINE OR DRIFT
- SPRING
- STATE OR NATIONAL MONUMENT

Township No. 8 NORTH Range No. 33 EAST County TREASURE

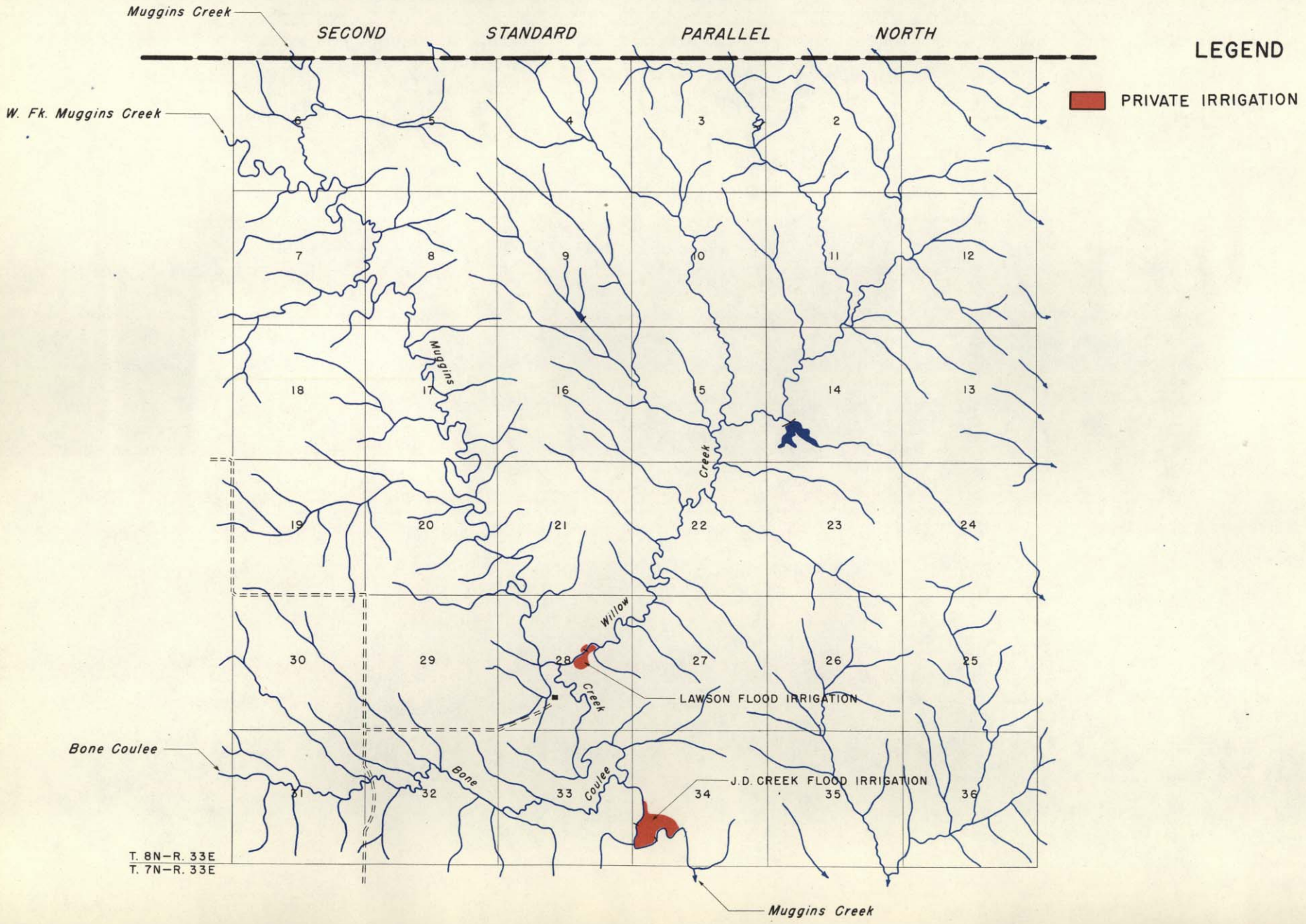
T. 8 NORTH
R. 33 EAST



Township No. 8 NORTH Range No. 34 EAST County TREASURE

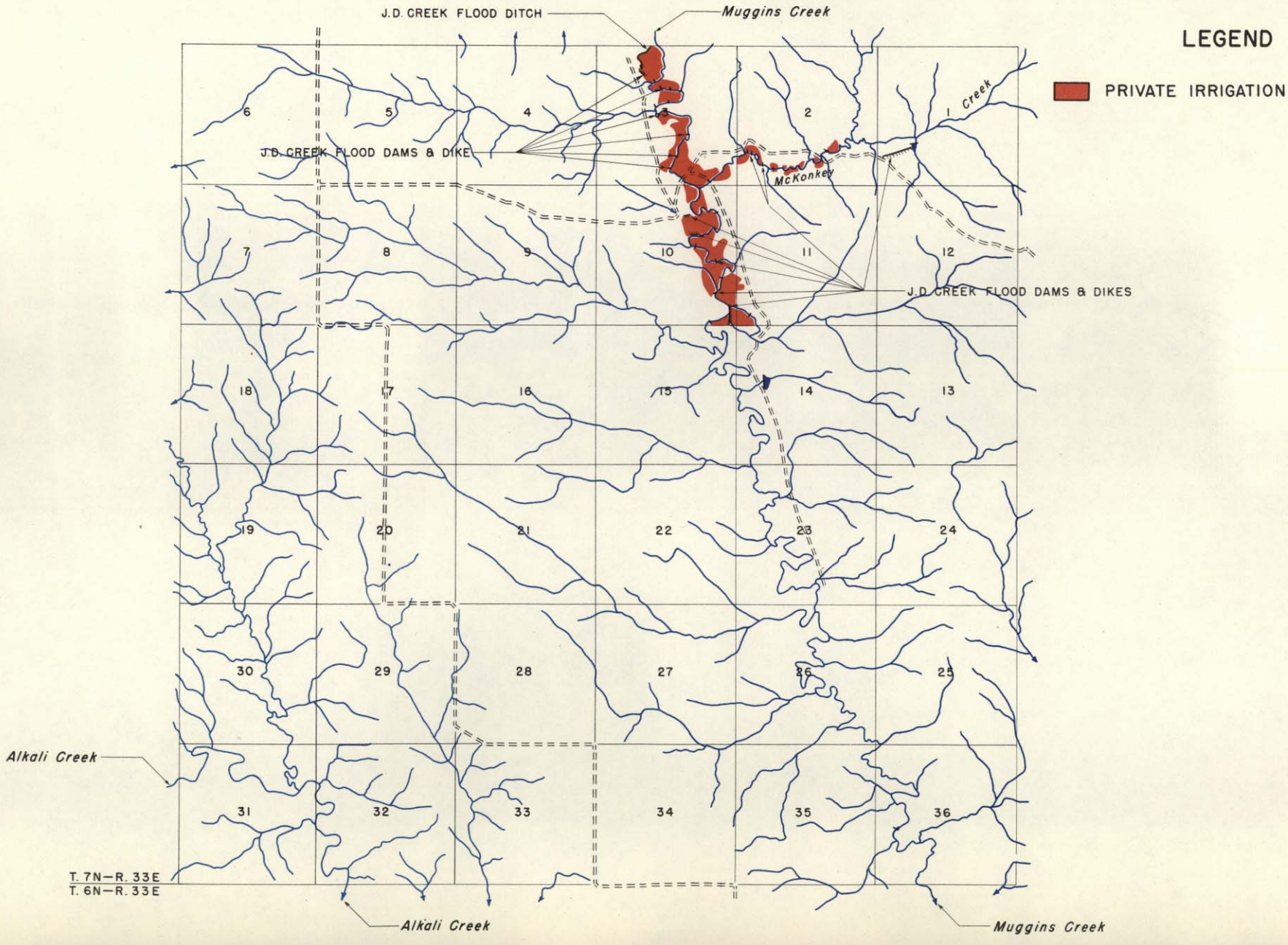
T. 8 NORTH
R. 34 EAST

ROSEBUD COUNTY



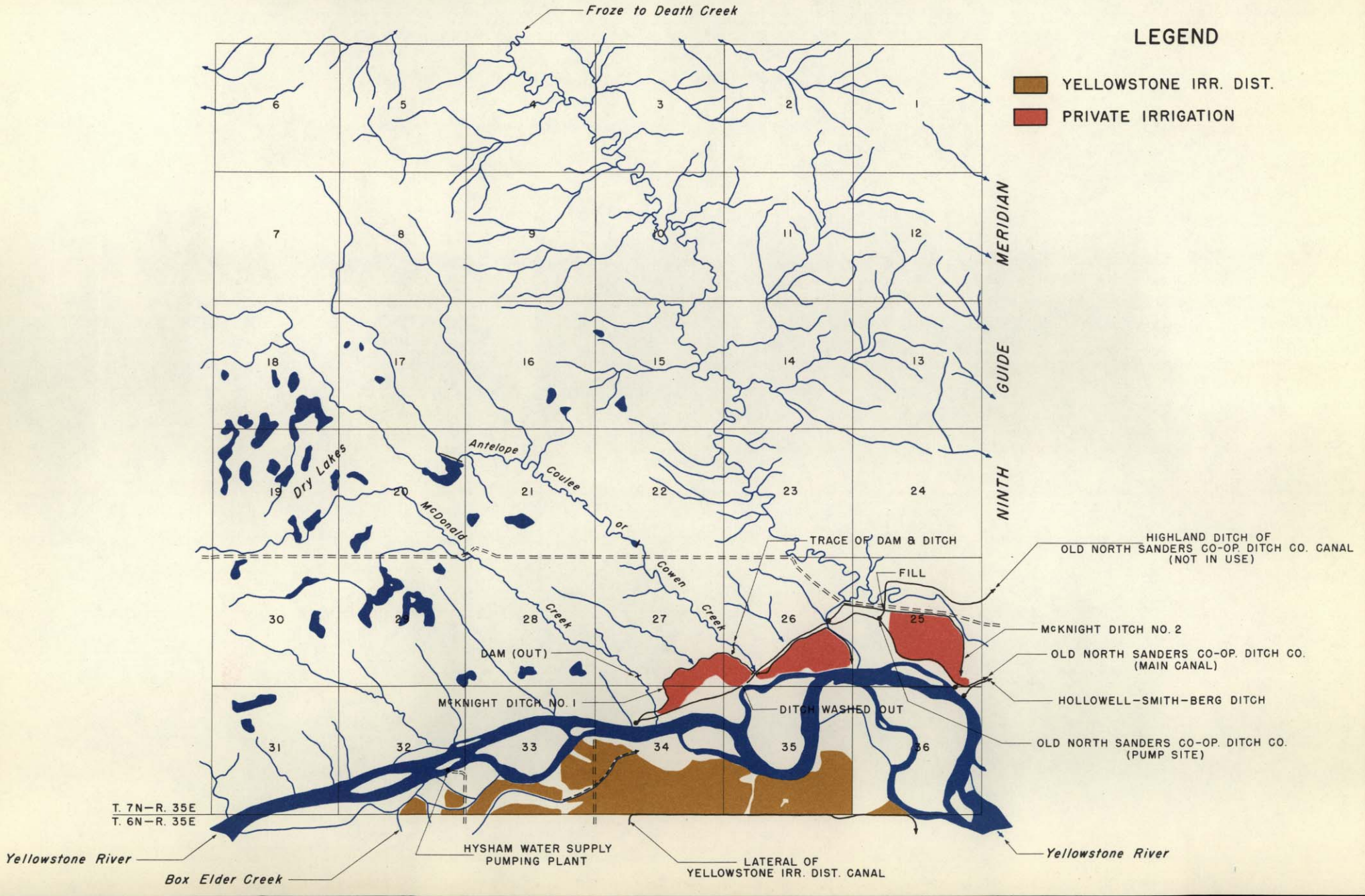
Township No. 7 NORTH Range No. 34 EAST County TREASURE

T. 7 NORTH
R. 34 EAST



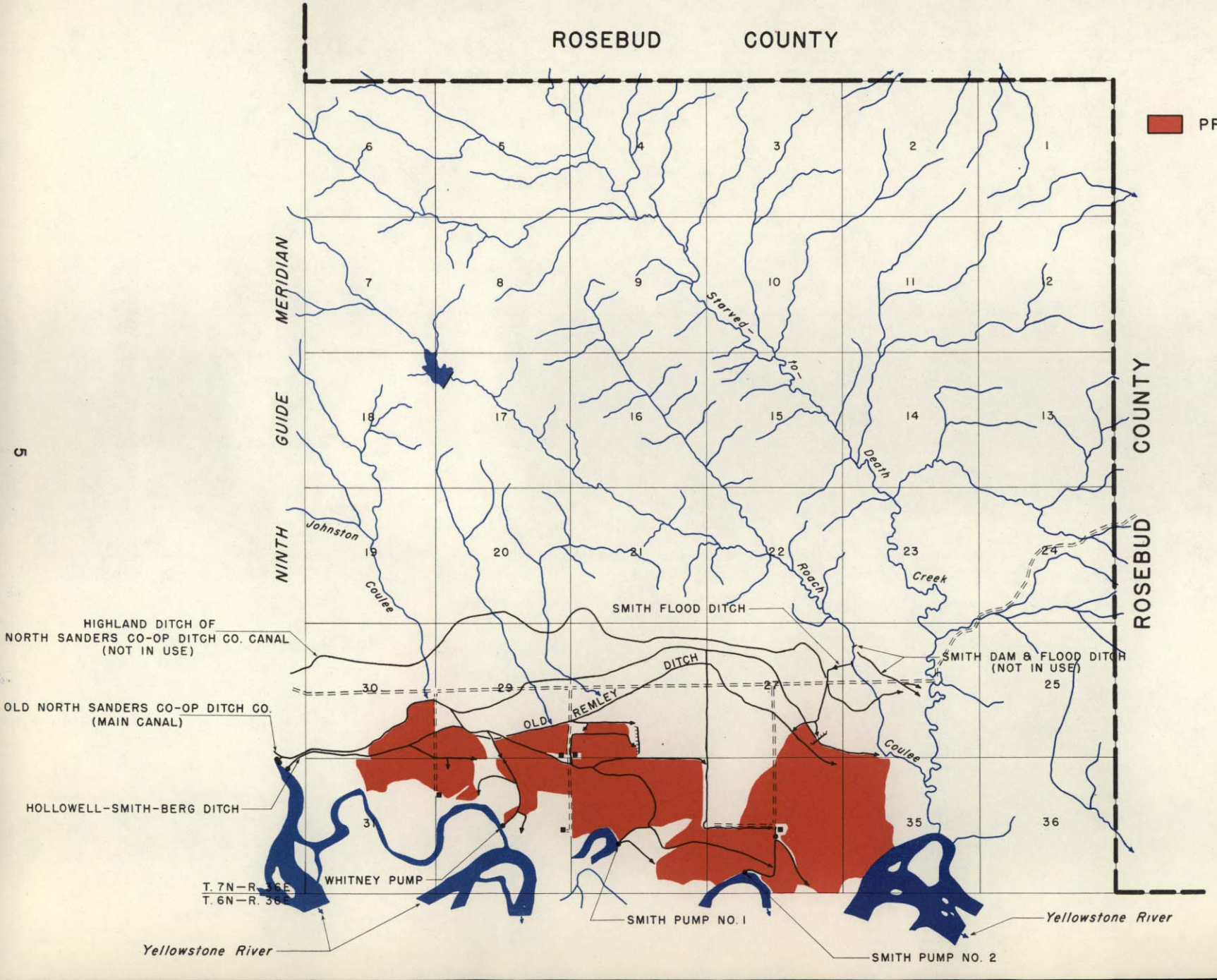
Township No. 7 NORTH Range No. 36 EAST County TREASURE

T. 7 NORTH
R. 36 EAST



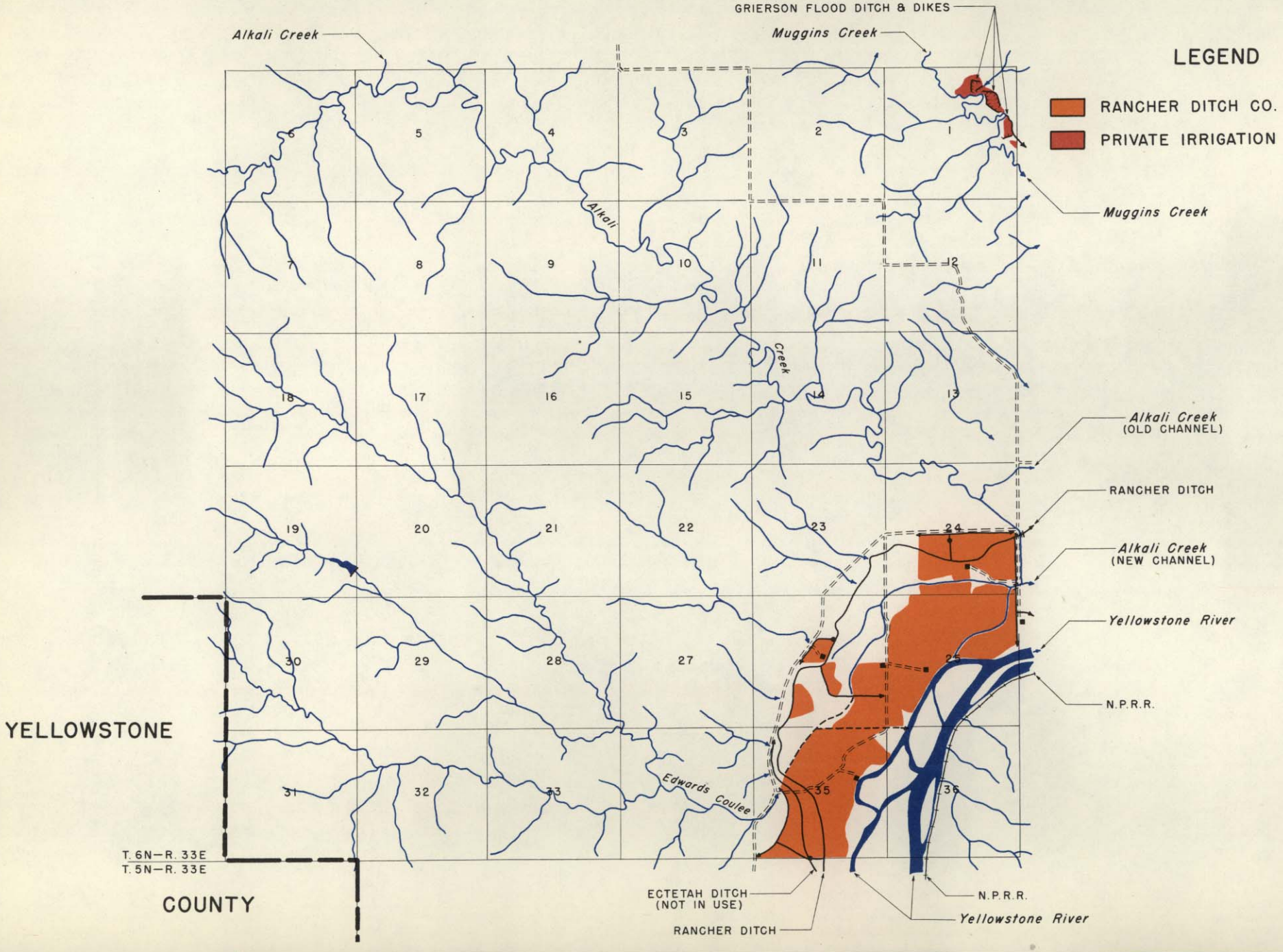
Township No. 7 NORTH Range No. 37 EAST County TREASURE

T. 7 NORTH
R. 37 EAST



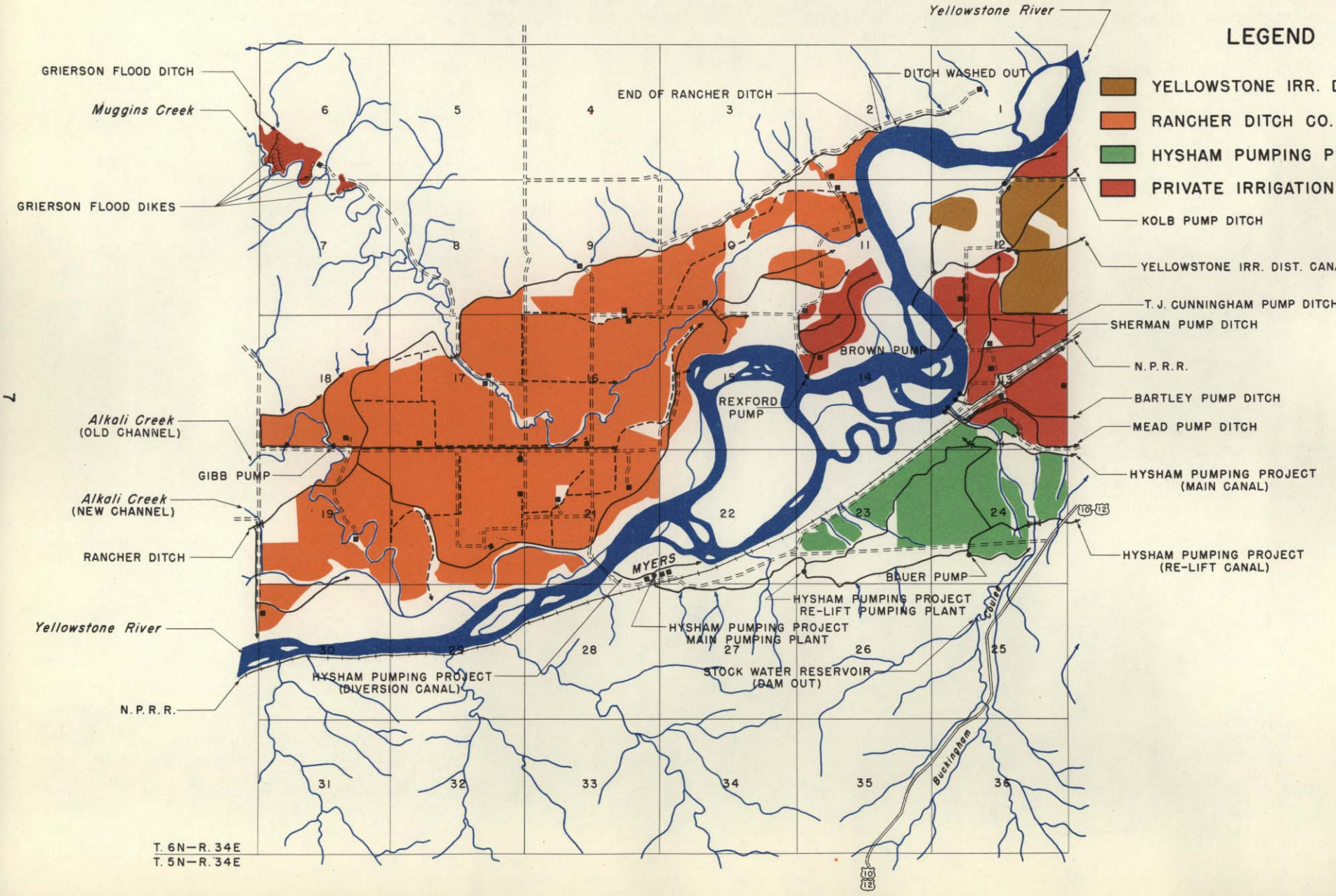
Township No. 6 NORTH Range No. 34 EAST County TREASURE

T. 6 NORTH
R. 34 EAST



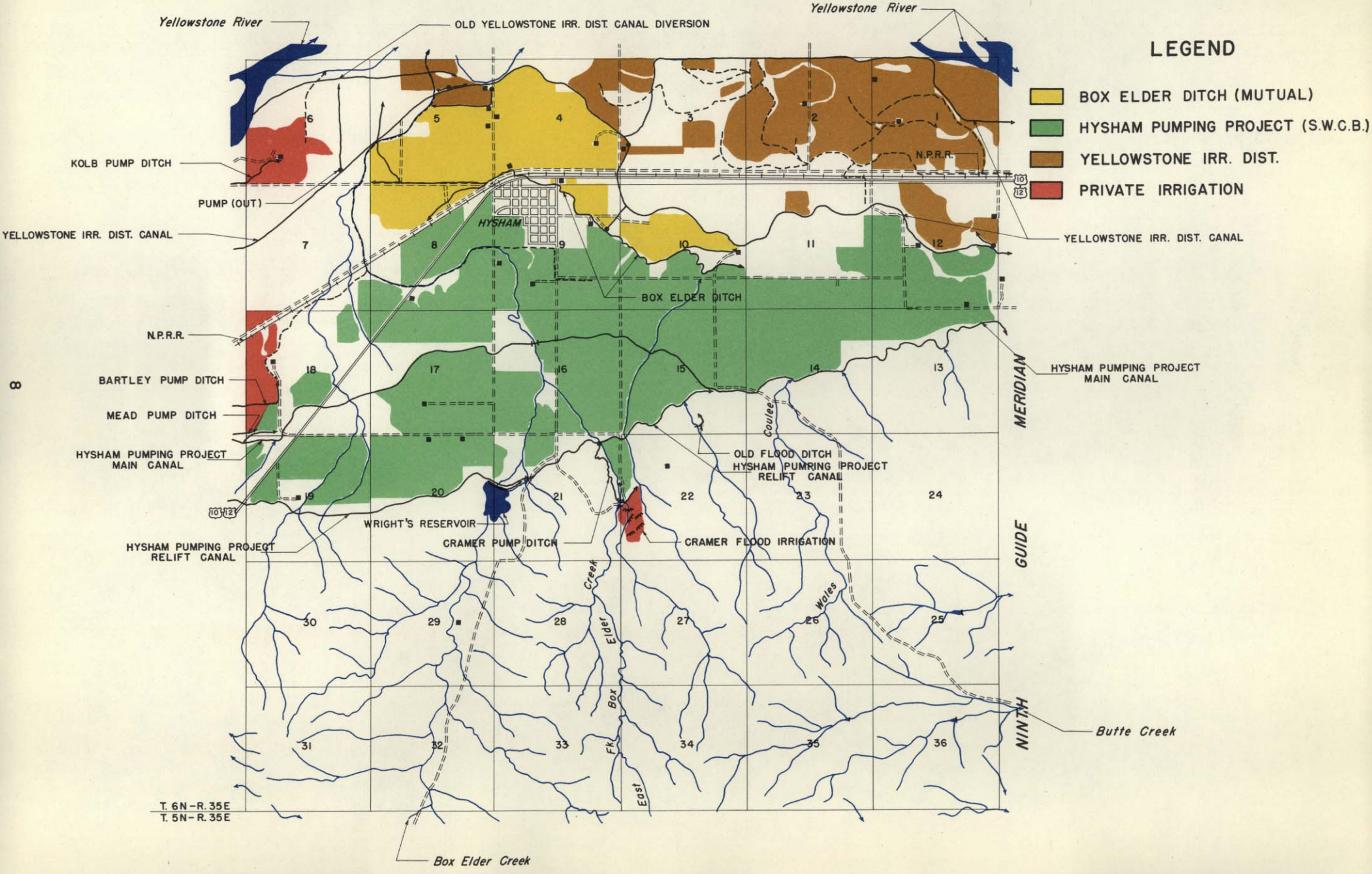
Township No. 6 NORTH Range No. 35 EAST County TREASURE

T. 6 NORTH
R. 35 EAST



Township No. 6 NORTH Range No. 36 EAST County TREASURE

T. 6 NORTH
R. 36 EAST

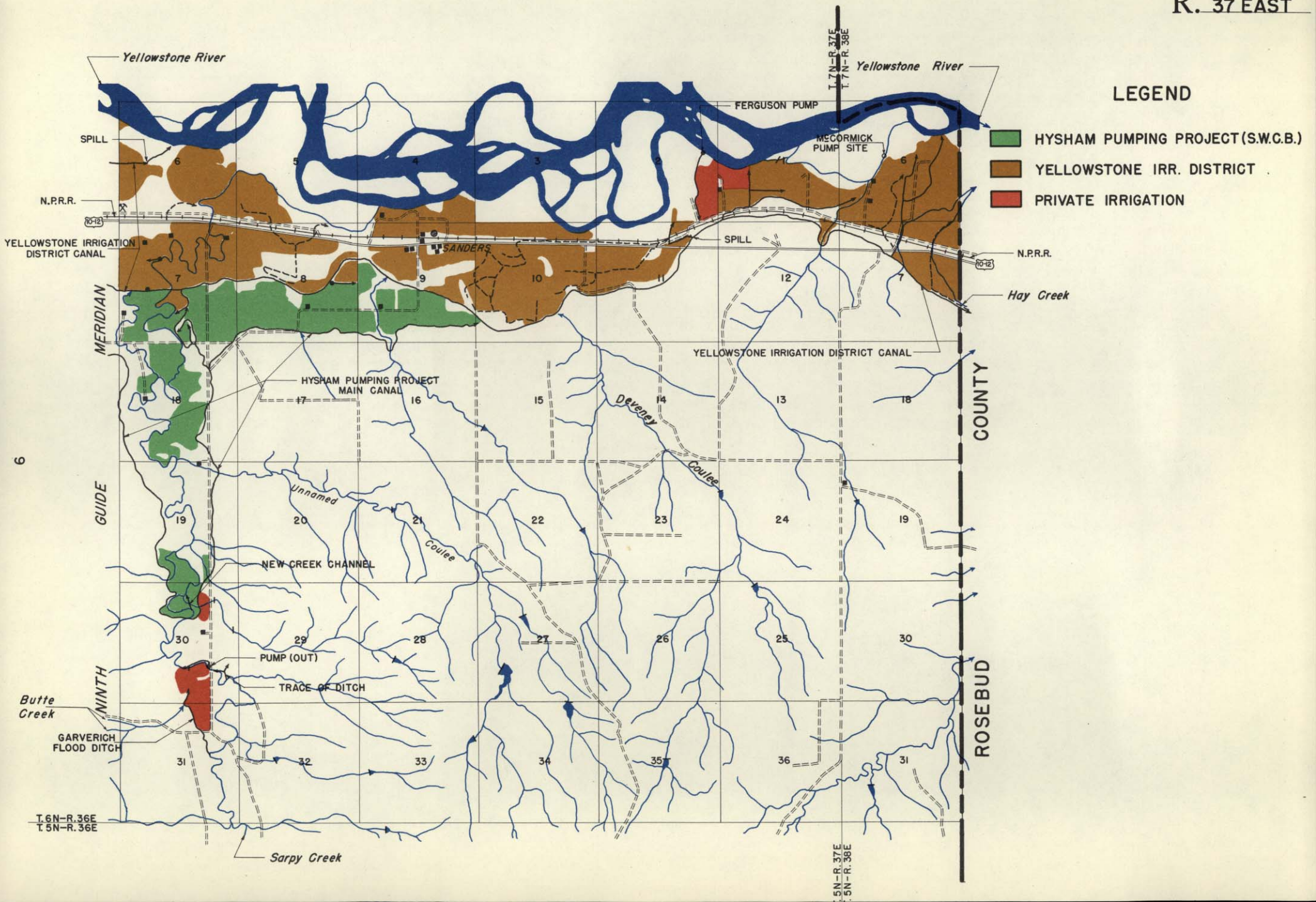


LEGEND

- BOX ELDER DITCH (MUTUAL)
- HYSHAM PUMPING PROJECT (S.W.C.B.)
- YELLOWSTONE IRR. DIST.
- PRIVATE IRRIGATION

Township No. 6 NORTH Range No. 37 EAST County TREASURE

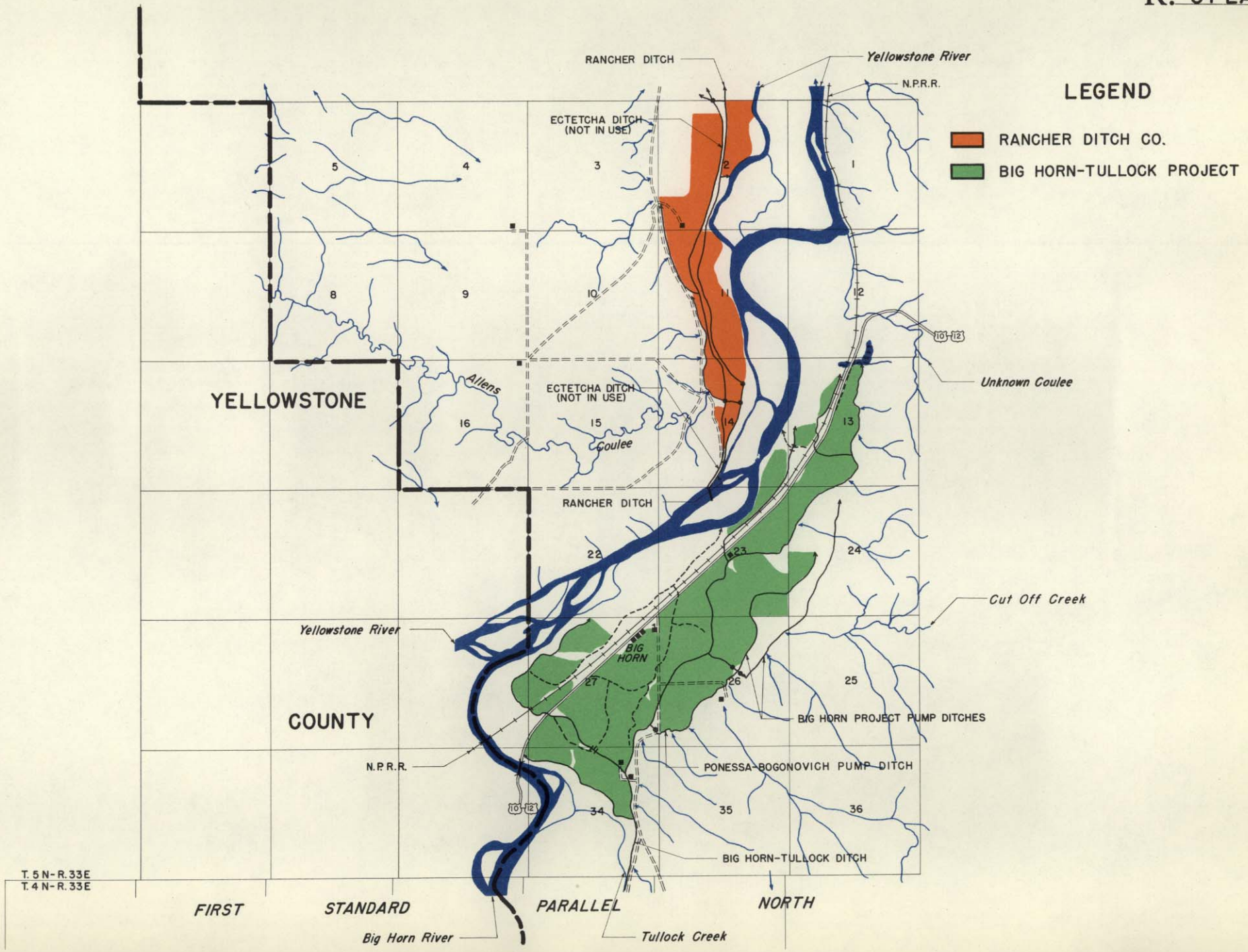
T. 6 NORTH
R. 37 EAST



6

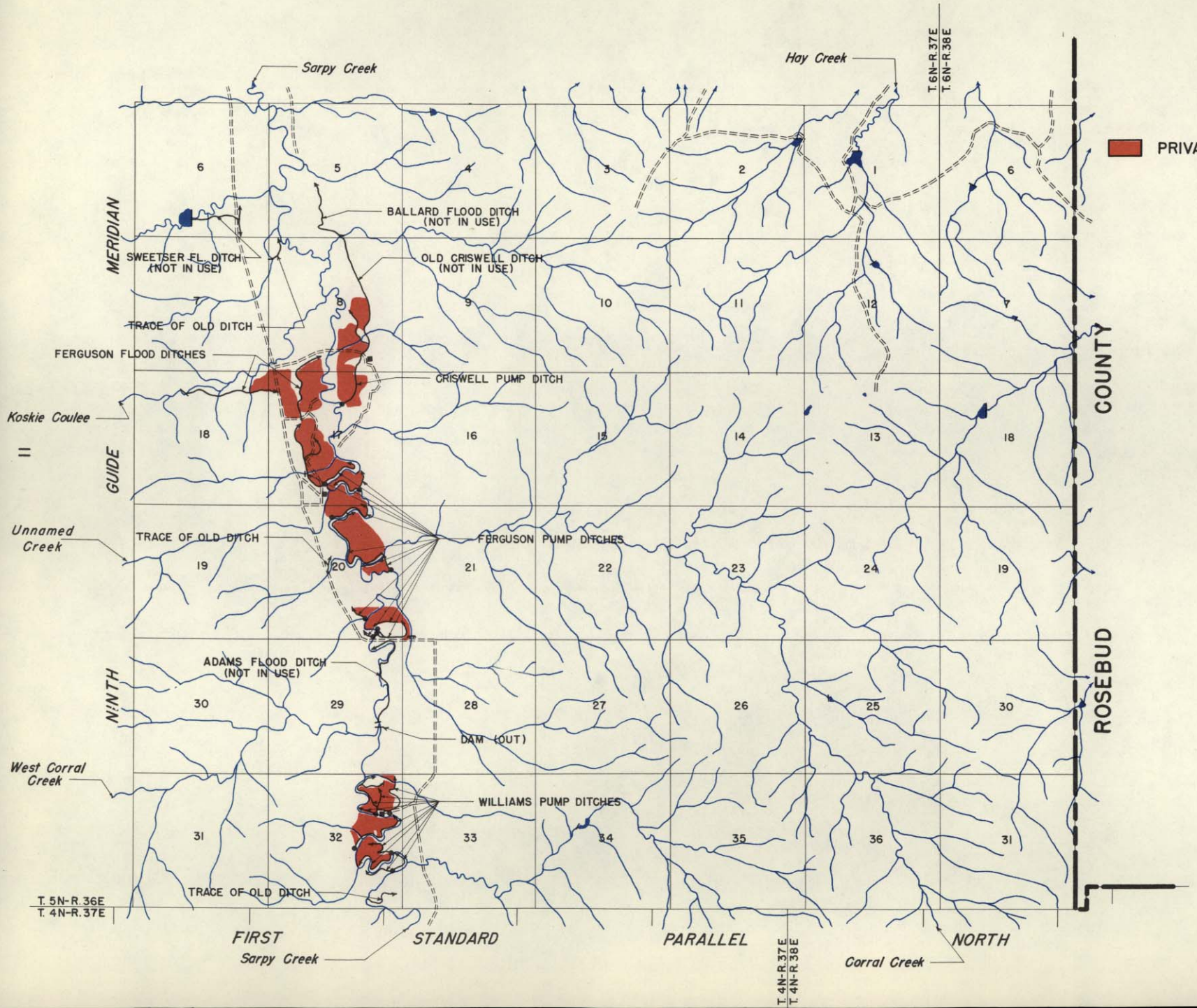
Township No. 5 NORTH Range No. 34 EAST County TREASURE

T. 5 NORTH
R. 34 EAST



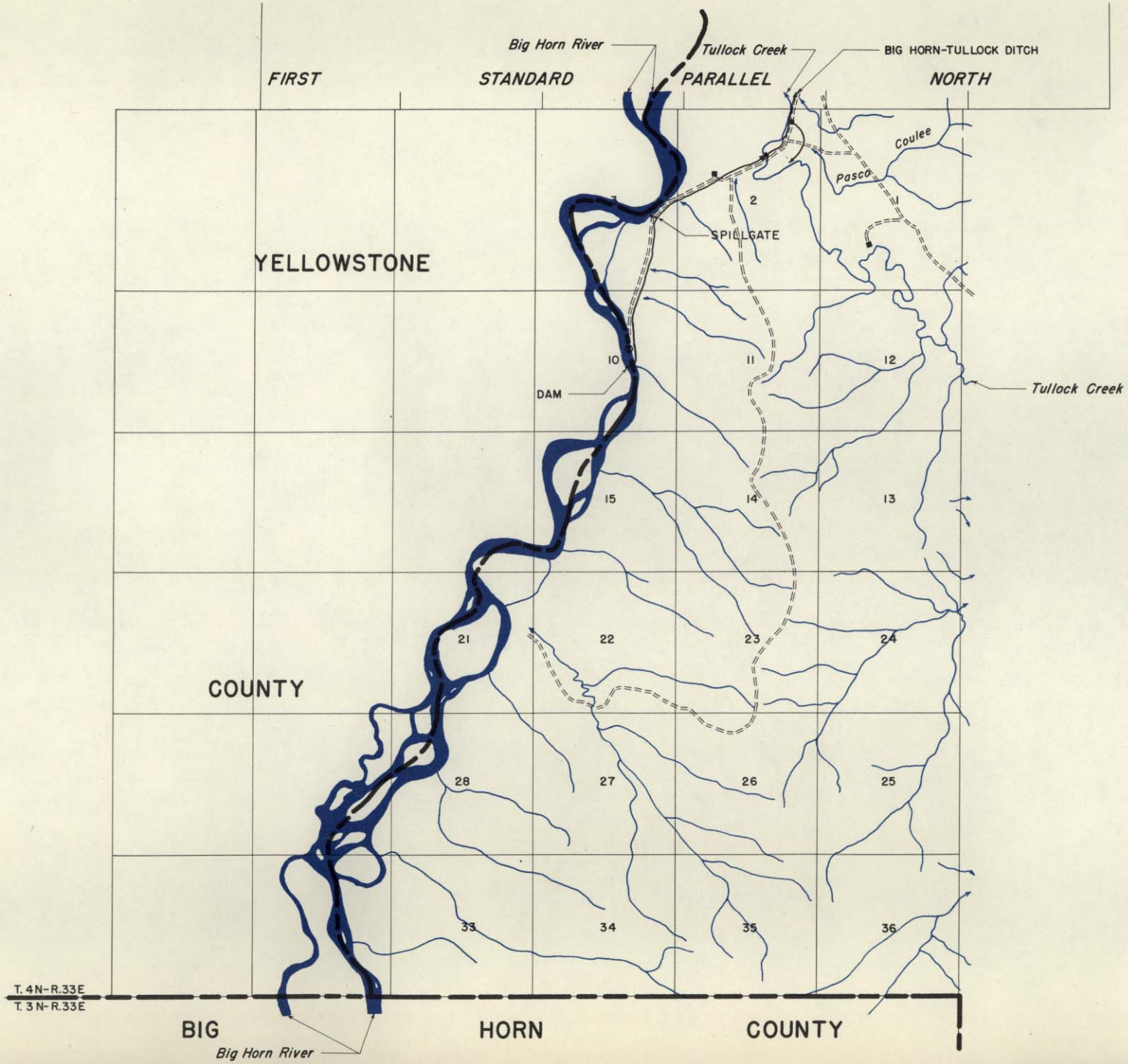
Township No. 5 NORTH Range No. 37 EAST County TREASURE

T. 5 NORTH
R. 37 EAST



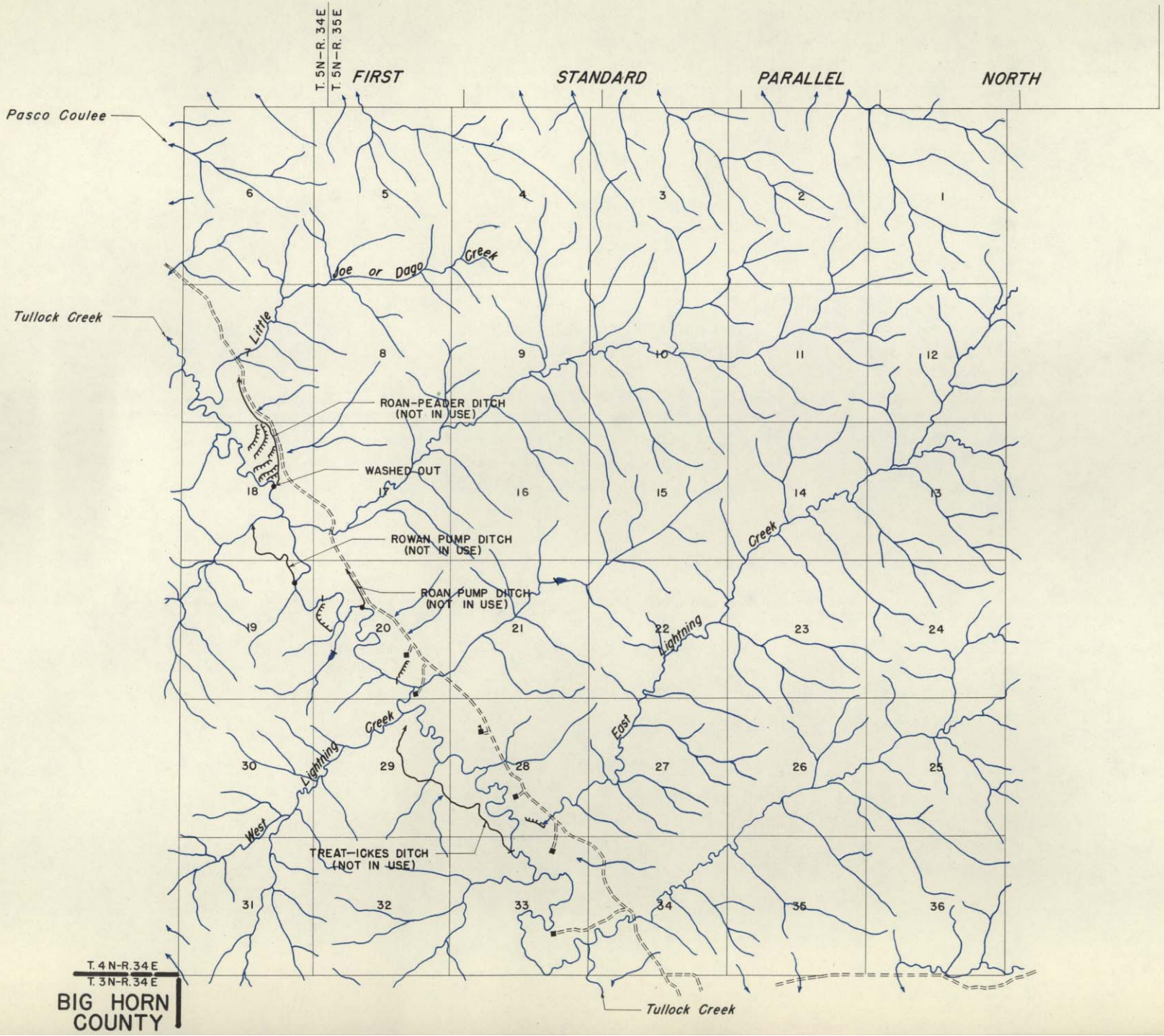
Township No. 4 NORTH Range No. 34 EAST County TREASURE

T. 4 NORTH
R. 34 EAST



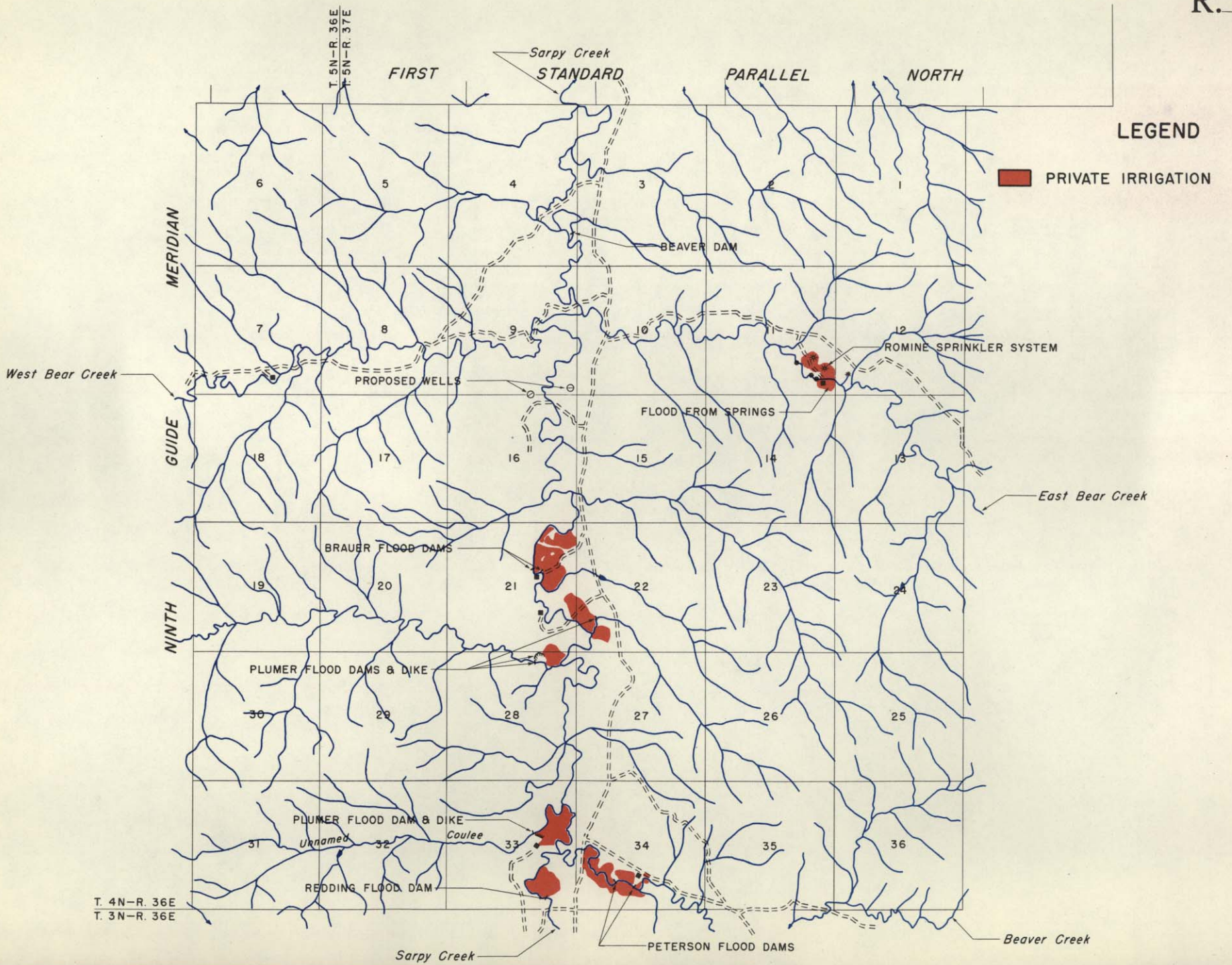
Township No. 4 NORTH Range No. 35 EAST County TREASURE

T. 4 NORTH
R. 35 EAST



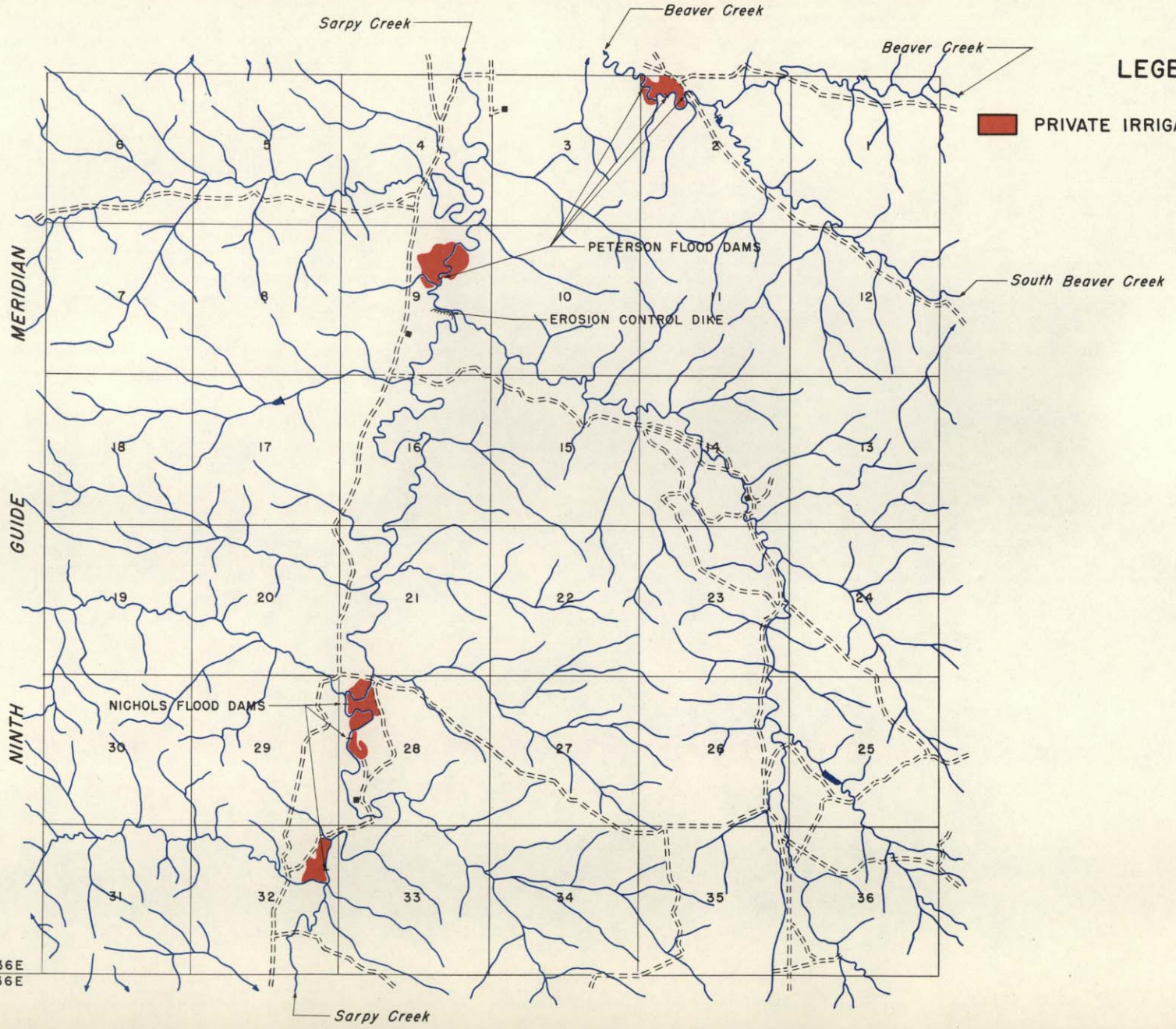
Township No. 4 NORTH Range No. 37 EAST County TREASURE

T. 4 NORTH
R. 37 EAST



Township No. 3 NORTH Range No. 37 EAST County TREASURE

T. 3 NORTH
R. 37 EAST



Township No. 2 NORTH Range No. 37 EAST County TREASURE

T. 2 NORTH
R. 37 EAST