WATER SUPPLY, NAVAJO & HOPI

BELENA BEGA WELL

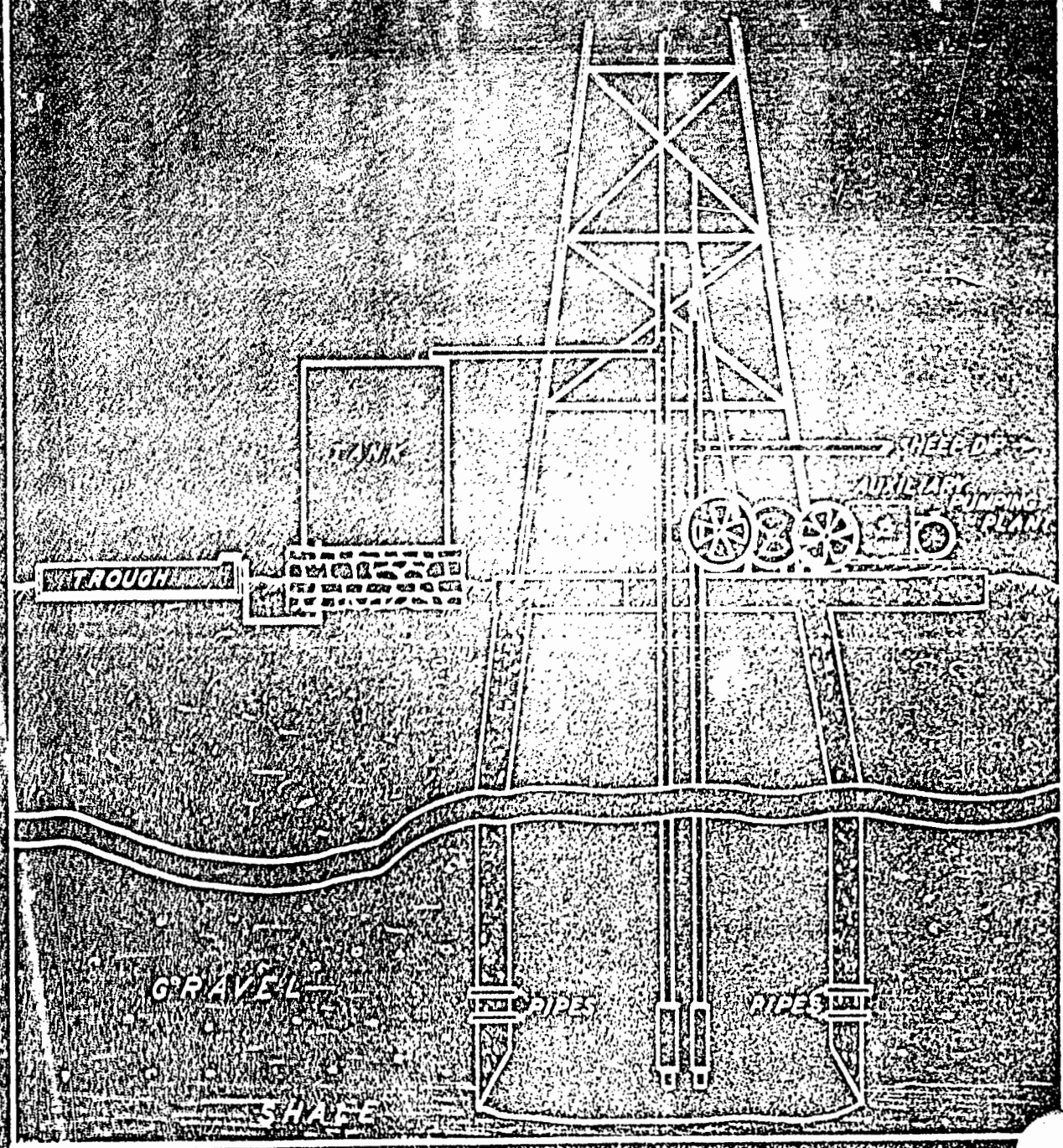
LEUPP EXTENSION

DEVELOPED BY

U. S. INDIAN SERVICE

IRRIGATION

1926



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From the office letter it was understood that funds were not available for the work during the fiscal year 1926 but the report was desired so that plans could be made for doing this work in the future when funds might become available.

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MARSH PASS

As has been reported previously, the Marsh Pass Project was finished several years ago and turned over to the Agency forces for operation. For some reason, practically no use has been made of the project; the Indians only irrigate 30 or 40 acres each year from it.

During the past year, Supt. Myer requested that the project be put in condition to serve the school farm at Kayenta. An examination was made and it was found that no maintenance work had been done on the ditch for several years and it was so filled with silt that there was practically nothing left of the ditch and it was impossible to get any appreciable amount of water through it. The flow of the stream from which the water is diverted carries a great deal of silt and unless care is taken this silt is deposited in the canal as soon as the velocity of the water is checked. It is believed that if the ditch is cleaned, the material thrown out will raise the

banks of the ditch high enough to allow raising the dam another foot which will increase the grade of the head section and help to keep it clear from the silt deposit as the velocity will be somewhat greater. An estimate was made for doing this work and it was found that the cost would be approximately $2400.00.

Inasmuch as the Indians are not using this project, Supt. Myer was notified that the funds available for irrigation would not be applicable to put the project in shape for the school and that it would be necessary to get specific funds from the Office or direct authority to do the work, if we were to undertake it. No reply was received from Mr. Myer and nothing has been done in the rehabilitation of this project.

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NAVAJO & HOPI WATER DEVELOPMENT

During the past year efforts have been devoted, in a greater measure than during the past several years, in the development of springs. Attached will be found two small maps showing two different parts of the Navajo and Hopi country with the springs that have been developed during the past two years marked thereon. There is also a blue print for nearly every one of them showing method of developing and how they were improved. The following memoranda of each of the reservations will show in a general way what has been done on each of the jurisdictions:

Western Navajo Reservation

In addition to helping and encouraging the Indians to build surface water tanks, cleaning out springs, and other water holes, etc., we have done the following: dug five wells, improved two springs, erected windmill and constructed reinforced concrete troughs.

5 wells

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At this time we have sufficient material on hand to carry on future development work and during the first half of next year, beginning July 1st, because we have a good supply of material, will be able to accomplish much more in the same length of time than in the past.

Loupp Reservation

Owing to shortage of funds we could not carry on spring development work on all of the reservations at the same time, therefore, as considerable work along this line has been done in the past in this jurisdiction, it is believed advisable to spend the money elsewhere for the time being. However, it was found necessary to develop a well to be used for sheep dipping purposes, as well as stock water, which was accomplished by sinking a reinforced concrete caisson down through quicksand, constructing a reinforced concrete trough and erecting a storage tank; one spring, badly needed, was developed.

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During the coming year the spring development work will be continued, as long as funds are available. In case we get an additional sum of money it will be possible to accomplish more with the same overhead expense, than has been possible in the past.

Hopi Reservation

In addition to the maintenance of 51 wells, windmills, tanks and troughs, the following has been accomplished: Betterments - there were three reinforced concrete storage tanks and troughs constructed, and sandstone crushed for future construction; one well developed by means of sinking a concrete caisson down through quicksand; a reinforced concrete trough and storage tank erected; a total of six springs developed and concrete troughs constructed. Also helped these Indians build dirt tanks, clean out springs, wells and other watering holes.

51 total

There is material on hand to construct more reinforced concrete tanks and

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troughs, these to replace old worn out metal tanks and troughs, and this work will be carried on during the coming year.

It was necessary to do some needed road work in order to carry on the maintenance and construction work, such as making crossings over large arroyos and changing roads around impassable, washed out portions of roads.

Navajo Reservation

Since there has been a great deal of water development done on this reservation in the past, and a shortage of funds, the work on this reservation has been confined mostly to encouraging these Indians to build surface water tanks, clean out springs, wells and other watering places, and the maintenance of thirty-two wells, windmills, tanks and troughs.

However, as soon as more money is available the development of additional water will be resumed on this reservation, consisting of spring development, reservoirs, etc.

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2 wells

San Juan Reservation

On this reservation there has been to date five springs developed, two wells dug, reinforced concrete troughs constructed, two wells drilled (Artesian) and three wells (Artesian) purchased from oil companies.

There will be a man doing spring development work continually, as there is material on hand, and in the event that there is more money available, due to royalties on oil, etc. there will be an increased force added to carry on this work, in proportion to money available for this work.

All of the north and western part of the Western Navajo jurisdiction has been practically unknown to our Service and the Agency forces. During June, Mr. Womack was detailed to make a trip over this section with Supt. Walker and they covered the country quite thoroughly between Tuba City and Lee's Ferry north and south, and from Cedar Ridge west.

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It has always been our understanding from the geological formation of the country that this section would be practically arid and from the fact that the Grand Canyon cut through, that all springs and flowing water would be intercepted and none of them appear on the surface. The examinationsproved that these conclusions were correct and Mr. Womack reports: "We found there are practically no springs or permanent water existing." Their conclusions are that well drilling is therefore out of the question and that no springs of any importance could be developed. The only one method of developing water is of the surface water by means of earthen reservoirs. Much of the country has so little vegetation that it is of no value even to develop tank water but there are a number of valleys where there is some feed which may be reclaimed by building tanks.

Beyond the limits mentioned above, east and southeast, there are springs which

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may be developed and certain areas where shallow wells may be dug. Mr. Womack says that as this country is very rough and difficult to get over, it will be necessary to develop certain small sections at a time because of deep canyons and other obstructions to freight and travel. Certain sections are almost isolated and are only to be reached by one route.

The outline of work for the coming year, as suggested by Mr. Womack and approved by me, is as follows:

Operation & Maintenance

To operate and maintain 84 wells and windmills which requires a distance to be covered of about 1600 miles each month. This work consists of replacing broken windmill parts, old steel tanks with new reinforced concrete tanks, old troughs with new reinforced concrete troughs, etc.

Construction

Excavating springs, developing

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same by means of piping out to concrete storage reservoirs and troughs; digging shallow wells, walling up with rock or concrete, installing windmills, concrete storage tanks and troughs; construction of surface water reservoirs for storage of water during season of year when there is no snow or rainfall available, and to do the necessary road work to make travel possible to the different development work.

Surveys

It is proposed during the next year to make surveys of as much of the remote, outlying country as is possible, in order to determine grazing and water possibilities, so a complete plan of future development possibilities may be known.