



Map Showing Route of All-American Canal and Location of First Section to Be Constructed Near Yuma, Ariz. Present Alamo Canal Throughe Mexico Supplying Imperial Valley Also Shown.

# Bids Called For On First Contract of The All-American Canal

## Nearly 4,600,000 Cu. Yds. Excavation Involved Cut Runs Through Low Hills in Earth and Rock

Actual construction of the All-American canal, which will carry Colorado river water to the Imperial Valley through United States territory paralleling the Mexican border, will be under way before the close of the present year. Bids will be opened by the Reclamation Bureau at Yuma, Ariz., at 10 a.m., December 4, for excavating 21,000 lin. ft. of canal 6 to 8 miles west of Yuma and it is expected that a contract will be awarded without delay. Calls for bids on 5 other units will follow.

It is the announced policy of the Bureau to construct the entire canal, 75 miles in length, by contract unless some unforeseen situation should influence a change in policy. The Imperial Irrigation District, for which the Federal government is building the canal, sought permission to do the work by force account but its request was denied. However, it may submit a bid in competition with private contractors if it elects to do so but will have no advantage by reason of its ultimate ownership of the canal. Contractors do not fear competition from the District on equal terms and conditions.

Cost of the All-American Canal, exclusive of the Coachella branch, for which no pro-

vision is made in the present Federal contract with the Imperial Irrigation District, is estimated at \$27,000,000. The project will be financed by the Federal Public Works Administration, of which Secretary of the Interior Harold L. Ickes is the head, the money to be repaid by the District after completion of the canal. An allocation of \$6,000,000 has been made to start the work, which will permit the construction of about 20 miles of the canal extending from the eastern end at the point of diversion 4.5 miles above Laguna dam on the Colorado river to a point about 5 miles west of Pilot Knob near Yuma.

The first contract for which bids have been called is divided into two schedules. No. 1 (Station 1130 to Station 1235), 13,000 ft. in length, involves 1,895,000 cu. yds. of common excavation and 484,000 cu. yds. of excavation in solid rock. No. 2 (Station 135 to Station 1340), 8,000 ft., involves 2,210,000 cu. yds. common excavation. Bids will be taken on a unit basis with excavation as the only item.

This portion of the canal will have a capacity of 10,000 second feet of water and practically all of it will be excavated into earth or rock. It is located on the eastern edge of the Sand Hills west of Yuma and in places the mesa floor formation is overlaid with dune sand. The earth section for the

canal will be 130 ft. wide at the bottom with a 2.1 slope on the banks and the water level will be 16.38 ft. above the bottom. The rock sections for the canal will be 69 ft. wide at the bottom with a slope of 2.1 on the banks and the water level will be 19.87 ft. above the bottom. A berme 20 to 30 ft. wide will be provided on the embankments. The bottom of the canal is at an elevation of about 150 ft. above sea level.

On Schedule No. 1 the excavation will range from zero at places to a depth of 100 ft. The deepest cut will be in rock over a stretch of 750 ft. Rock is encountered at another point about 1200 ft. away from this cut where there is a stretch of about 700 ft. with a maximum cut of about 90 ft. Except at these two points excavation will be in earth.

The contracts to be let at this time provide only for excavating to prescribed lines and grades. Whether this portion of the canal will be lined is a matter to be decided later when the character of the formation in which the ditch is cut is definitely known. Where conditions necessitate future lining, however, excavation will be made to provide for it. Earth slopes are to be neatly finished with scrapers. In rock sections no finishing will be required above the water line but canal sections must be finished to prescribed lines, except that sharp points of undisturbed ledge rock will be permitted to extend not more than .5 ft. into the water prism.

Excavated material is to be placed in embankments where needed and waste will be disposed of as the engineer directs. Rock excavation is defined in the specifications as "all solid rock which cannot be removed until loosened by blasting, barring, or wedging, and all boulders or detached pieces of solid rock more than one-half cubic yard in volume. Solid rock under this class, as distinguished from soft or disintegrated rock under common excavation, which also requires blasting before removal, is defined as sound rock of such hardness and texture that it cannot be loosened or broken down by hand drifting picks. No material, except boulders or detached pieces of solid rock will be classified as rock excavation, which is not actually loosened by blasting before removal, unless blasting is prohibited, and barring, wedging or other similar methods are prescribed by written order of the contracting officers."

Common excavation is defined as "all material other than rock excavation, including but not restricted to earth, gravel, and also such hard and compact material as hardpan, cemented gravel and soft or disintegrated rock, which must be loosened by blasting before efficient removal by team-drawn scrapers or excavating machinery; also all boulders or detached pieces of solid rock not exceeding one-half cubic yard in volume. "These definitions are important in view of the care which must be exercised in blasting not to disturb material outside the prescribed lines of the canal.

This being a Federal project under Title II of the National Recovery Act, the execution of the contract will be governed by the provisions of P.W.A. Bulletin No. 51. As the project is isolated and construction camps will be necessary to house workers, in lieu of the 30-hour terms no worker employed on the job will be permitted to work more than 40 hours in any one week or more than 8 hours in any one day. The minimum wage for unskilled labor is 45 cents per hour and

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for skilled labor \$1.10 per hour. No Mongolian labor may be employed.

The time limit for completion of the work is set at 730 calendar days from receipt of notice to proceed, and \$100 per day liquidated damages will be collected from the contractor for each day completion of the work is delayed. The contractor will be required to furnish contracting officer with all information necessary to determine the cost of the

work, including the number of men employed, their pay, time worked on various classes of construction, and copies of freight bills on all materials, machinery and supplies shipped to the job.

R. M. Priest, U. S. Reclamation engineer in charge of the Yuma project will be the resident engineer in charge of the All-American canal project with headquarters in Yuma. R. F. Walter is the chief engineer of the Reclamation Bureau.