



WATER-RIGHT DOCKET

Glen Canyon National Recreation Area

Docket No: 1

WASHWEAP. WELL #1

State Water Rights Documentation

12-01-1961: memorandum to director from assistant regional director regarding report of equipment installed, park service well

Region Three
Santa Fe, New Mexico

LSA

DEC 1 - 1961

Memorandum

To: Director

From: Assistant Regional Director

Subject: Report of Equipment Installed, Park Service Well,
Glen Canyon National Recreation Area

We have checked our records in Docket No. 1 and find that the "Report of Equipment Installed" is correct as to the location of the well. The well is in the SE $\frac{1}{4}$, SW $\frac{1}{4}$, SW $\frac{1}{4}$, Section 36, T. 42 N., R. 8 E.

We have changed our "Notice of Intention to Drill Well" and "Report of Well Driller" so that they have the correct location. By copies of this memorandum we are advising the Superintendent and WODC to change the records in their dockets.

[SIGNED]

George W. Miller
Assistant Regional Director

In duplicate

Copy to: Supt., Glen Canyon
Chief, WODC (2)

W O D C

DEC - 4 '61

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ACTION TAKEN - DATE

November 22, 1961

L54-ALW

Memorandum

To: Regional Director, Region Three

From: Chief, Water Resources Branch

Subject: Report of Equipment Installed, Park Service Well, Glen Canyon

We have filed our copy of the subject report, received with Mr. Miller's memorandum of November 9, in Docket No. 1.

This report indicates the location of the well as being in the SE¹₄, SW¹₄, Sec. 36, T. 42 N., R. 8 E. The "Notice of Intention to Drill Well" and "Report of Well Driller" indicate the well location as SW¹₄, SW¹₄, SW¹₄, Sec. 36, T. 42 N., R. 8 E.

Please advise as to the correct well location description so that we can make the necessary correction of our Docket records.

SIGNED

A. van V. Dunn
Chief, Water Resources Branch

Copy to: Superintendent, Glen Canyon
Chief, WDC (2)

W O D C

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ACTION TAKEN - DATE	
none	

Region Three
Santa Fe, New Mexico

LSH
SECA

NOV 9 - 1961

Memorandum

To: Director
From: Assistant Regional Director
Subject: Report of Equipment Installed, Park Service Well,
Glen Canyon National Recreation Area

Attached is a copy of a "Report of Equipment Installed" for
the Park Service well, Glen Canyon National Recreation Area.

We have placed a copy of this in our water rights docket and
by copies of this memorandum are sending the report to WODC
and the Superintendent for insertion in their dockets.

(SIGNED)

George W. Miller
Assistant Regional Director

In duplicate

Attachment

Copy to: Chief, WODC (2) w/attachment
Supt., Glen Canyon w/attachment

NOV 13 '61

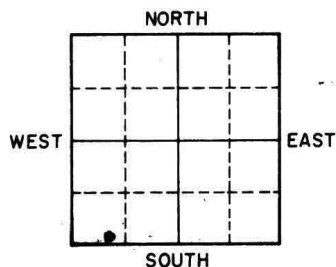
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[Handwritten signatures and initials over the routing slip]

[Handwritten initials]

STATE LAND DEPARTMENT
Water Division
Phoenix 7, Arizona

Location of Well

File No. (A-42-8) 36 ccc

(Indicate Well Location
by a circle "o" in the
above Section Plat)

REPORT OF EQUIPMENT INSTALLED

OWNER National Park Service

LOCATION OF WELL:

SE 1/4 SW 1/4 SW 1/4, Sec. 36 Twp. 42N Rge. 8EDate Well Completed: Feb. 2, 1961 Depth 7031. Well Test:Discharge: 275 Date Well Tested: August 1, 1961
(Gal. Per Min.)Method of Discharge Measurement: current meter
(weir, orifice, current meter, etc.)Static Water Level: 453 ft. Drawdown 25 ft.Total Pumping Lift 640 ft.2. Equipment Installed:Kind of Pump: Line-shaft Turbine
(turbine, centrifugal, etc.)Kind of Power: Elec. H. P. Rating of Motor 75
(Elec., Nat. Gas, Etc.)

I HEREBY CERTIFY that all the above statements are true to the best of my
knowledge and belief.

Date 8/18, 1961.

James M. Egan, Superintendent
Signature
Glen Canyon National Recreation Area
P. O. Box 1507
Page, Arizona
Address

hox
OBED M. LASSEN
STATE LAND COMMISSIONER
PHONE 271-4621

STATE LAND DEPARTMENT
STATE OF ARIZONA
STATE OFFICE BUILDING
PHOENIX 7, ARIZONA

IN REPLY REFER TO:

LOUIS C. DUNCAN
MANAGER
PHONE 271-4621

July 10, 1961

A. W. McGRATH, SUPERVISOR
ACCOUNTING DIVISION
PHONE 271-4622

L-54

JOHN W. LAUBSCHER, SUPERVISOR
LEASING DIVISION
PHONE 271-4634

CHARLES ROYALL, ASST. ATTY. GEN.
LEGAL DIVISION
PHONE 271-4626

Mr. George W. Miller
Assistant Regional Director
United States Department of the Interior
National Park Service
Region Three
Santa Fe, New Mexico

FRED RYAN, SUPERVISOR
MINERAL, OIL & GAS PRODUCTION
DIVISION
PHONE 271-4628

Re: File No. (A-42-8)36 ccc

J. H. KENNEDY, SUPERVISOR
SALES DIVISION
PHONE 271-4631

Dear Mr. Miller:

GEORGE M. SKILES, SUPERVISOR
SERVICE DIVISION
PHONE 271-4637

This will acknowledge receipt of the "Report of Well Driller" which you sent us on June 16, 1961. We are enclosing a duplicate verifax copy of this report as you requested. The fee for the duplicate copy will be \$.50, which you may submit at your convenience.

WAYNE KESSLER, DIRECTOR
SOIL CONSERVATION DIVISION
PHONE 271-4625

We are also enclosing two(2) copies of the "Report of Equipment Installed" concerning your well. Please fill in all the necessary blanks and return the original copy to this office at your convenience.

DON LEMASTER, SUPERVISOR
WATER DIVISION
PHONE 271-4629

Very truly yours,

Donald LeMaster
Donald LeMaster
Water Division

JOE ARNOLD, DIRECTOR
WATERSHED MANAGEMENT DIV.
PHONE 271-4633

EA/cwg

Encl: 1 verifax copy
2 "Report of Equipment Installed"
(blank forms)

L-54 glo



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

IN REPLY REFER TO

This card to be posted on or nearby the well rig during drilling operations.

State of Arizona
EXEMPTED WELL

NOTICE OF INTENTION TO DRILL AN EXEMPTED WELL HAS
BEEN FILED WITH THE STATE LAND COMMISSIONER BY

NATIONAL PARK SERVICE

FOR PURPOSES OTHER THAN IRRIGATION OF AGRICUL-
TURAL LAND. WELL TO BE LOCATED IN

TWP. 42 N. RGE. 8 E. SEC. 36 SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$

EXPIRATION DATE: 12-12-61

WD FORM G-308

Acting Deputy STATE LAND COMMISSIONER



OFFICE OF
State Land Department
STATE OF ARIZONA
Phoenix, Arizona

OBER M. LASSEN
STATE LAND COMMISSIONER

December 12, 1960

United States of America
National Park Service
P. O. Box 1728
Santa Fe, New Mexico

File No: (A-42-8)36 ccc

Gentlemen:

This copy of Notice of Intention to Drill Well in Twp. 42N, Rge. 8E,
Section 36, ^{SE 1/4} SW 1/4 SW 1/4, is returned to you for your file. Also
enclosed are a:

WELL DRILLING CARD, which should be in the hands of
the driller before construction of the well is started;

REPORT OF WELL DRILLER form, which may be filled in
by the driller but which you should make sure is mailed to
us after completion of the well;

REPORT OF EQUIPMENT INSTALLED form, which shall
be filled in by you and sent to us after the installation of
the pumping equipment.

In the event it is necessary to change the location of the proposed well,
you should obtain the written permission of the State Land Commissioner
before proceeding with the drilling.

Very truly yours,

WATER DIVISION

By *Don L. Master*

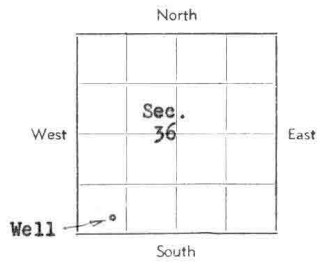
cc: USGS, Tucson
5-5-59
2-88

RECEIVED	
NPS REGION THREE OFFICE	
DEC 14 1960	
REG. DIR.	
ASST. R.D.	
ADMIN.	
INSTR. ACT.	
INT. AFF.	
RECREATION	
SOLICITOR	
FILES	

W.D. FORM NO. 5-300
REV. 5-20-57-6-58LAND DEPARTMENT
WATER DIVISION
STATE OF ARIZONA

NOTICE OF INTENTION TO DRILL WELL

This notice required under the provisions of Section 45-305, Arizona Revised Statutes by any person proposing to drill an irrigation or drainage well having a capacity of more than 100 gal. per min. outside of a critical area, or for the drilling of any well for the development and use of ground water both within and without a critical water area where a permit to drill is not required.

LOCATION OF
PROPOSED WELL

Indicate Well Location by Circle
(Above diagram represents one full section)

1. Twp. 42 N.
2. Rge. 8 E.
3. Section 36
4. SW 1/4 SW 1/4 SW 1/4
10-acre subdivision

INSTRUCTIONS

Fill out both copies and mail to Water Division, State Land Department, Phoenix, Arizona.

Duplicate will be returned to landowner, lessee or Government land entryman together with a card for the well driller.

DESCRIPTION OF
PROPOSED WELL

5. Diameter 13 3/4 in. depth 850 ft.
6. Type of casing 12"
7. Estimated depth to water 450 ft.
8. Proposed use Domestic and Irrigation
9. Location of nearest operating irrigation well SW 1/4 SW 1/4 Sec. 36
10. Drilling will start about December 1960
Month Year
11. Driller Perry Brothers
Name
Flagstaff, Arizona
Address

12. Water will be applied to use about May 1961
Month Year

20. This notice filed by:

Check one { Owner ☒
Lessee ☐
Entryman ☐

United States of America
Name National Park Service
P. O. Box 1728
Address Santa Fe, New Mexico

PLACE OF
PROPOSED USE

13. Twp. 41 and 42 N.
14. Rge. 8 E.
15. Section 1 & 2; 35 & 36
16. See attached
Legal Description of Portion of Section to be Irrigated
17. Acres 90
United States of America
18. Owner National Park Service
Name
P. O. Box 1728
19. Santa Fe, New Mexico
Address

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Received 12-8-60 By RW7
Filed 12-8-60 By RW7
Duplicate
Mailed 12-12-60 By RW7
File Number 44-92-8) 36 CCC

17016



L-54

Region Three
Santa Fe, New Mexico

DEC 5 1960

Arizona State Land Department
Water Division
Phoenix, Arizona

Gentlemen:

Enclosed are the original and one copy of your form G-300, Notice of Intention to Drill Well. In addition, we have attached two letter-size prints showing the lands to be irrigated in Sections 1 and 2, T. 41 N., R. 8 E., and Sections 35 and 36, T. 42 N., R. 8 E., GASHN, Glen Canyon National Recreation Area.

Water from this well will be used for Park employees and visitors to the Glen Canyon National Recreation Area, and it will also be used for irrigation of trees and lawn used by permanent residents and the visiting public at campgrounds.

Under Item 9, "Location of nearest operating irrigation well", this well is primarily for domestic use and it might be advisable to rule out the word "irrigation" since it is probably not an irrigation well in the strict sense of use.

Under Item 17, "Acres" and on the letter size sketch map, the area shown to be irrigated and described as 90 acres is a land line subdivision wherein we expect to apply beneficial use of water from the well. The land to be irrigated in the northeasterly portion of the land line description will be an irregular line which will be the shore line of the reservoir when completed. It is expected that a more accurate description of the area irrigated can be prepared with our subsequent filing after the well is completed, the pump installed and the actual production is known.

Sincerely yours,

(SIGNED)

George W. Miller
Assistant Regional Director

Enclosures

Copy to: Director (2) w/o enclosures
Superintendent, Glen Canyon w/o enclosures
Chief, WODC (2) w/o enclosures

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L.A.	SPEC
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copy made 12/14/60 and 12/15/60
Wm

W O D

DEC-260

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PERS	
P & P	
ARCH	
ENERGY	✓
L.A.	✓
SPEC	
SFTY	

ACTION TAKEN: none

DATE: none

To: Regional Director, Region Three

From: Chief, Water Resources Section

Subject: Permit to Drill a Well, Wahweap Area, Glen Canyon

For comparison, please refer to the original decreed rights to waters of the Virgin River in Zion Docket 1, Part I. The decree authorized different quantities of water in the valley and on the plateau to the north of the Park, but more than 2½ AF/A in both cases. The altitude at Wahweap area is more comparable with the plateau at Zion.

SIGNED

Copy to: Superintendent, Glen Canyon
Chief, WODC (2)

Form 10-174
(Rev. 8-56)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
COMPLETION REPORT OF CONSTRUCTION PROJECT

REGION Three	AREA Glen Canyon National Rec. Area	COUNTY Coconino	STATE Arizona
PROJECT OR JOB TITLE Water Supply and Distribution System, Sewage Disposal System		PCP NO. U-1 (Por.) U-2 (Por.)	BUILDING NO. - - -
LOCATION IN AREA Wahweap Area		MASTER PLAN NO. NRA-OC-3000A	MASTER PLAN CONTROLLED BY: AS-BUILT DRAWINGS
WORKING DRAWING NO. AND TITLE See each contract		WORK ORDER NO. B-7 GLCA	
APPROPRIATION TITLE AND SYMBOL 14-1035, Construction, NPS, 1961		DATE WORK STARTED Dec. 20, 1960	DATE WORK COMPLETED Aug. 2, 1961
CONTRACT NO. See each contract		ADDRESS See each contract	
NAME OF CONTRACTOR See each contract			

COST ANALYSIS

CONSTRUCTION ITEMS	QTY.	UNIT COST IN PLACE	TOTAL COST IN PLACE
Drilling Water Well - C# 14-10-0333-727			\$12,405.00
Water & Sewer System - C# 14-10-0333-752			32,930.65
500,000 Gal. Reservoir - C# 14-10-0333-764			36,220.00
Pump & Pumphouse - C# 14-10-0333-770			<u>15,461.64</u>
Total Contract			\$97,017.29
Excavation & Grading for Pumphouse (D.L.)			954.00
		TOTAL	\$97,971.29

SUMMARY OF EXPENDITURES

Form 10-174
(Rev. 8-56)UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
COMPLETION REPORT OF CONSTRUCTION PROJECT

REGION	AREA	COUNTY	STATE
PROJECT OR JOB TITLE Drilling of a Water Well			PCP NO.
LOCATION IN AREA		MASTER PLAN NO.	BUILDING NO.
WORKING DRAWING NO. AND TITLE NRA-3C-3006 Site Plan for Well		MASTER PLAN CORRECTED BY: _____ AS-BUILT DRAWING BY: _____	
APPROPRIATION TITLE AND SYMBOL		WORK ORDER NO.	
CONTRACT NO. #14-10-0333-727		DATE WORK STARTED Dec. 20, 1960	DATE WORK COMPLETED Feb. 3, 1961
NAME OF CONTRACTOR Perry Bros. Well Drilling Co.		ADDRESS 2033 North Navajo, Flagstaff, Arizona	

COST ANALYSIS

CONSTRUCTION ITEMS	QTY.	UNIT COST IN PLACE	TOTAL COST IN PLACE
1. Lin. ft. of 13 3/4" Bore (min) Sur. - 600' deep	600	8.00	\$4,800.00
2. Lin. ft. of 13 3/4" Bore (min) 600' - 703' deep	103	7.00	721.00
3. Lin. ft., 12" min I.D. Casing, Furnished & installed from surface to 600' deep	600	7.00	4,200.00
4. Lin. ft., 12" min I.D. Casing, Furnished & installed 600' - 703' deep (+2' above sur.)	105	7.00	735.00
5. Lump sum, furnishing Directional and continuous Dipmeter Logs of Well	1	999.00	999.00
6. Hours, Development and Experimental Work as directed	17 1/2	20.00	350.00
7. Deleted C.O. #1	-	-	-
8. Deleted C.O. #1	-	-	-
9. Lin. ft., perforating casing	200	3.00	600.00
TOTAL			\$12,405.00

SUMMARY OF EXPENDITURES

PERSONAL SERVICES	EQUIPMENT	MATERIALS AND SUPPLIES
OTHER		

CHANGE ORDERS

ORIGINAL CONTRACT AMOUNT	FIRST	SECOND	THIRD
\$19,799.00	Re \$5,200.00	Under-runs \$2,194.00	
FINAL CONTRACT AMOUNT	FOURTH	FIFTH	SIXTH
\$12,405.00			

THIS PROJECT OR JOB HAS BEEN COMPLETED IN ACCORDANCE WITH
APPROVED DRAWINGS, SPECIFICATIONS, AUTHORIZED CHANGES

Drilling of Water Well

C# 14-10-0333-0727

This contract consisted of drilling, casing and developing a water well to serve the Wahweap area. It is proposed to pump this well at a rate of 260 gpm.

The Notice to Proceed was issued dated December 15, 1960. The first calendar date of the contract was recorded as December 20 at which time the Contractor, Perry Brothers Well Drilling Company, 2033 North Navajo Drive, Flagstaff, Arizona, was on hand with drilling rig in place and the drilling operation started.

On December 31 the first water showed at a depth 450', which was the anticipated depth determined from other wells, used by the Glen Canyon Dam Contractor, located in the immediate area.

From information provided by the Glen Canyon Dam Contractor the main supply of water was down about 550' below the ground surface which again proved to be the case on this well. After reaching this approximate depth the static water level rose to 444' from the ground surface. A sandstone formation was encountered throughout the entire depth. Logs on the other wells showed a "water bearing sand." This formation was not encountered, but the consensus of opinion on these other wells is that it is not a sand formation but rather a loosely knit sandstone formation.

The well was drilled to a depth of 703' with the intention of getting slightly lower than the other wells now being heavily pumped, in order to be reasonably assured of an adequate future supply. The 703' depth was reached on January 5, 1961.

The Dipmeter and Directional Logs were made by Schlumberger Well Surveying Corporation of Denver, Colorado. A copy of the results is attached to this report.

A sample of water was taken and tested at the U.S. Bureau of Reclamation laboratory in Page, Arizona, as a preliminary determination of potability. This sample was intended only as a general indication of what can ultimately be expected. The sample contained a significant amount of suspended solids since no attempt had been made as yet to develop and clean the well. The results of this test are as follows:

Total Dissolved Solids	- - - - -	1476
pH	- - - - -	7.3
Total Hardness	- - - - -	628
Phenolphthalein Alkalinity	- - - - -	0
Menthyl Orange	- - - - -	328
Calcium	- - - - -	125
Chlorides	- - - - -	188

- 2 -

It can be expected that the above amounts will be maximums and the well will improve with use. This has been the case with other wells in the area.

On January 7, 1961, the Glen Canyon Dam Contractor's well #5 turned hot (125° F water). Well #8 also turned hot shortly thereafter and on January 8 it also was pumping 125° F. water. A Stop Work Order was issued effective the close of business on January 9, until such time as this situation could be studied and determine what effect if any, it would have on the subject well. After pumping well #8 on January 9 the water started cooling and by January 10 the temperature was near normal. Pump #5 was inoperative, apparently due to a combination of poor maintenance and the hot water. With no indication of further hot intrusions in the area a Resume Work Order was issued effective January 16.

No positive course has been established for the intrusion but the most logical explanation seems to be an opening of a fissure allowing a small pocket of hot water to escape.

The bottom 200' of the casing was perforated on the ground surface by means of a cutting torch. There were 10 slots around the pipe, 6 inches long by 3/8 inches wide. The slots were staggered down the pipe. Contractor completed installation of the casing on January 24.

A dummy test utilizing a 40' length of 8" pipe with collars welded at the top, bottom and midpoints giving 1/4" clearance between inside diameter of pipe and dummy collars, was made. The dummy passed freely throughout the entire length.

Change Order No. 1 dated January 16 was issued to delete Item 7 and 8 shown on the Contract Bid Schedule. These items consisted of furnishing and setting test plugs and 40 hours of testing. The decision was made that we would not test pump since from all indications an adequate supply of water was available as determined from other wells in the area. The Change Order reduced the contract amount by \$5,200.00

An experimental test was run using the bailer as a pump. Fifty gallons per minute could be bailed. The test was run for one hour with no draw down.

The well was surged and bailed until all sand and solids harmful to pump operation had been removed.

Under-runs on this contract amounted to \$2,194.00 and they were the result of the following:

1. Reduced total depth from 850 to 703 feet.
2. By reason of the above item only 705 feet (2' above grade) of casing was installed instead of 850.
3. Only 17 1/2 hours of developing and experimental work required instead of 40 hrs.
4. An increase was made in the amount of perforating required - 200' instead of 100'.

- 3 -

Final inspection and acceptance was made on February 2, 1961. The Contractor placed a temporary cap on the well on February 3 to complete the project.

The location of the well is in Sec. 36, T42N, R8E, being 923.3 feet N85° 13'E from the section corner common to Sec. 35&36, T42N, R8E and Sec. 1&2, T41N, R8E.

A "Notice of Intention to Drill" was made to the Land Department, Water Division, State of Arizona, and has the file No. (A-42-8) 36 ccc. A "Report of Well Driller" was filed with that office on June 19, 1961. A "Report of Equipment Installed" has also been filed with the State of Arizona.

Form 10-174
(Rev. 8-56)UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
COMPLETION REPORT OF CONSTRUCTION PROJECT

REGION	AREA	COUNTY	STATE
PROJECT OR JOB TITLE 500,000 Gal. Reservoir			PCP NO.
LOCATION IN AREA		MASTER PLAN NO.	BUILDING NO.
WORKING DRAWING NO AND TITLE NRA-OC-3017 500,000 Gal. Reservoir			MASTER PLAN CORRECTED BY: AS-BUILT DRAWING BY
APPROPRIATION TITLE AND SYMBOL			WORK ORDER NO.
CONTRACT NO. 14-10-0333-764		DATE WORK STARTED May 9, 1961	DATE WORK COMPLETED July 15, 1961
NAME OF CONTRACTOR Eidson Metal Products		ADDRESS 626 Mission Ave., N.E., Albuquerque, N.M.	

COST ANALYSIS

CONSTRUCTION ITEMS	QTY.	UNIT COST IN PLACE	TOTAL COST IN PLACE
1. Lin. ft. 8" C.A., Class 150 Pipe	685	5.00	\$3,425.00
2. Lin. ft. 4" C.I., Class 150 Pipe	104	4.00	416.00
3. L.S., Reservoir & Valve Housing	1	32,210.00	32,210.00
Change Order #1			139.00
TOTAL			36,220.00

SUMMARY OF EXPENDITURES

PERSONAL SERVICES	EQUIPMENT	MATERIALS AND SUPPLIES
OTHER		

CHANGE ORDERS

ORIGINAL CONTRACT AMOUNT 35,840.00	FIRST 139.00	SECOND Over-runs 241.00	THIRD
FINAL CONTRACT AMOUNT 36,220.00	FOURTH	FIFTH	SIXTH

THIS PROJECT OR JOB HAS BEEN COMPLETED IN ACCORDANCE WITH
APPROVED DRAWINGS, SPECIFICATIONS, AUTHORIZED CHANGES

500,000 Gallon Reservoir

C# 14-10-0333-764

This contract consisted of constructing a 500,000 gallon, cone roof, steel reservoir, 74' diameter and 16' high, with valving and appurtenances; and installing 685 feet of 8" cement asbestos pipe to connect it to an existing water system.

The Notice to Proceed was dated May 3, 1961. The first calendar day of the contract was recorded as May 9, 1961. The Contractor arrived on the jobsite on May 16 ready to start work.

First item of work consisted of grading out for the tank site to a minimum depth of one foot below natural ground. Since the tank had no other foundation than the natural blow sand found in the area, this one foot depth was to insure that the wind would not blow the sand out from underneath.

Change Order #1 dated May 25 was issued to install an 8"x6"x6" tee in the cement asbestos line and to install two-inch piping in the valve housing and into the bottom of the reservoir. This change was to provide piping for a future fire line which will serve the trailer village. An increase of \$139.00 was made to the contract to cover the change, but no additional time was necessary.

Included in the early phase of construction was the installation of the 8" cement asbestos water line and the valve house which was below tank grade.

Over-runs on this contract amounted to \$241.00 and they consisted of installing 45 feet of 8-inch C.A. water line and 4 feet of 4-inch C.I. overflow line in addition to the quantities shown on the bid schedule.

Steel for the tank arrived on the jobsite on May 29. This steel was plates as received from the mill - no shop pickle and prime and no bottom and top sketch plates cut. All cutting was done on the jobsite by acetolene.

Tank erection proceeded at a normal pace with laying of the bottom plates starting May 30 and all welding of plates and appurtenances essentially complete by June 16. However, the gusset plates which are on the roof girders, and which bolt to the rafters, were all fabricated identical, instead of having varying elevations of the bolt holes depending on the gusset plates distance from the center of the tank. The Contractor installed the gusset plates and when the roof was laid, it had bulges and sags which were objectionable. Change Order #2 dated July 5, 1961, was issued to direct the Contractor to change the gusset plates so the bolt hole elevations conformed to distances from center of the tank. Since this was an

- 2 -

error in erection, not due to negligence of the Contractor, an extension of ten days was made to the contract time. There was no increase in cost to the contract due to this Change Order.

On June 22 the water line was tested and numerous leaks were found. These leaks were all corrected and on June 23 another test was made at 58 psi which revealed the line now met specifications.

The Contractor started sandblasting on June 24 using a black grit. This worked fairly successful but near the end of the sandblasting operation, when the supply of grit was nearly exhausted, blowsand, as found natural around the area, did a much better and quicker job in removing slag and mill scale.

The painting operation was accomplished simultaneously with the sand blasting. The interior and outside bottom two feet were painted with Tnemec No. 464 T&O coal tar (three coats). The remaining outside was given one coat of red lead primer and two coats of Tnemec Bisque No.965 Metal Structures paint. Just after completion of the final outside coat a sudden, high velocity windstorm blew in from the northwest. The vacuum created by this wind on the lee side of the tank, sucked up the black sand blasting grit from the ground and deposited it in the fresh paint. The next day the Contractor was required to remove the grit by brooming and washing, and repaint the final coat.

After completion of the painting, the interior of the tank was washed down with water containing 100 p.p.m. chlorine. This high concentration was washed down after two hours contact with clear water.

On July 15 a final inspection of the completed work and acceptance was made.

Form 10-174
(Rev. 8-56)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
COMPLETION REPORT OF CONSTRUCTION PROJECT

REGION	AREA	COUNTY	STATE
PROJECT OR JOB TITLE Water & Sewer System - 1961 F.Y.			PCP NO.
LOCATION IN AREA		MASTER PLAN NO.	BUILDING NO.
WORKING DRAWING NO. AND TITLE NRASGC 3011 Water & Sewer System - 1961 F.Y.		MASTER PLAN CORRECTED BY: _____	
APPROPRIATION TITLE AND SYMBOL		AS-BUILT DRAWING BY: _____	WORK ORDER NO. _____
CONTRACT NO. 14-10-0333-752		DATE WORK STARTED March 7, 1961	DATE WORK COMPLETED May 9, 1961
NAME OF CONTRACTOR Stratton Brothers Const. Co.		ADDRESS P.O. Box 367, Hurricane, Utah	

COST ANALYSIS

CONSTRUCTION ITEMS	QTY.	UNIT COST IN PLACE	TOTAL COST IN PLACE
1. Lin. ft. 6" C.A., Class 150 Pipe	5066.12	2.58	\$13,070.59
2. Lin. ft. 4" C.A., Class 150 Pipe	582.8	2.00	1,165.60
3. Lin. ft. 2" GSP	225	1.37	308.25
4. Lin. ft. 6" C.I., Class 150 Pipe	144	4.35	626.40
5. Ea., Valve Boxes	5	550.00	2,750.00
6. Ea., 4" Fire Hydrants	3	250.00	750.00
7. Ea., Haul Road Crossing	1	2,500.00	2,500.00
8. Deleted by Change Order #2	-	-	-
9. Ea., 6" Gate Valve	10	89.55	895.50
10. Ea., 4" Gate Valve	1	65.00	65.00
11. Ea., 2" Gate Valve & Valve Box	4	43.00	172.00
12. Ea., Air Relief Valve & Valve Box	1	100.00	100.00
13. Cu. Yds Select Aggregate Backfill	25	1.00	25.00
14. Lin. ft. Float Control Cable	840	.15	126.00
15. Lin. ft. Float Control Cable, Installed	2280	.25	570.00
Total Water System			23,124.34
TOTAL			

Water and Sewer System (F.Y. 1961)

C# 14-10-0333-752

This project consisted of installing the initial water and sewer system for the Wahweap Area. A water supply main was run from the vicinity of the well site to the vicinity of the reservoir site, and from the latter a main was run to the campground area, which was the initial area of construction. The sewer system installed was to handle the sewage from two campground Comfort Stations which are to be constructed in 1961 F.Y.

The Notice to Proceed was issued dated March 3, 1961. The first calendar day of the contract was recorded as March 7, 1961. The Contractor began moving equipment and materials onto the jobsite on March 15. Actual construction consisting of clearing starting March 27 and trenching and laying of pipe on March 28.

Work proceeded without too much difficulty except for jacking the pipe sleeve under the Glen Canyon Dam Aggregate Haul Road for the sewer line crossing. A hard layer of caliche was encountered part way through and the Contractor had to raise the sewer line grade to miss this layer. The pipe sleeve for the water line crossing was installed without difficulty.

The Contractor had to shoot a portion of the trench for the water line in the Utility Area near the well site.

Change Order No. 1 dated April 19 was issued to have the Contractor install 150 feet of $\frac{1}{2}$ inch conduit through the water line pipe sleeve under the haul road. This conduit was to contain the electric float control cable in the sleeve to prevent it's being damaged if the pipe moved. This Change Order increased the contract by \$34.81, but no change was made in the length of time involved to complete the contract.

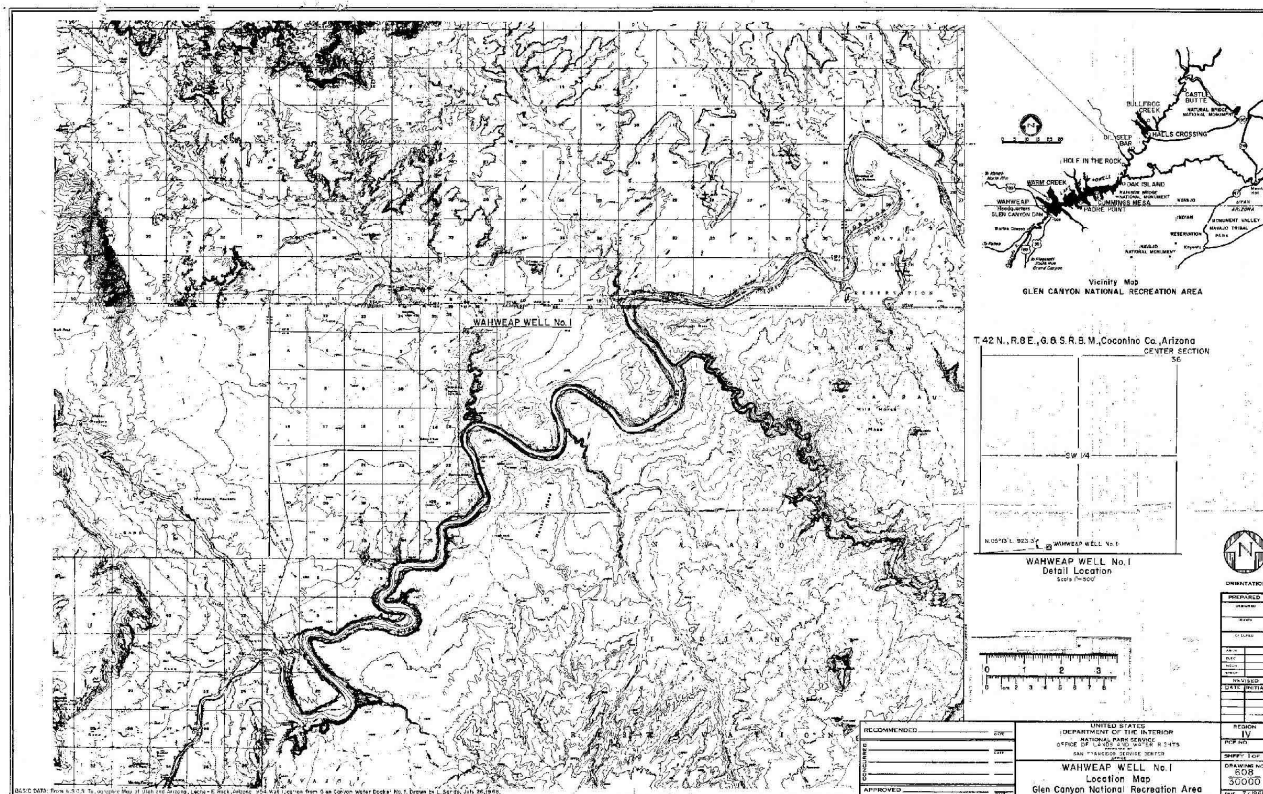
Change Order No. 2 dated May 5 was issued to record changes in alignment and quantities of material which deviated from that shown on the contract drawings. This changed the quantities shown in the bid schedule as follows:

1. Reduced Valve Boxes from 6 to 5
2. Increased Fire Hydrants from 1 to 3
3. Deleted 8 inch Gate Valve
4. Increased 6 inch Gate Valves from 9 to 10
5. Decreased 4 inch Gate Valves from 3 to 1

By reason of the Change Order the contract amount was reduced by \$210.14. The contract time remained the same.

Over-runs on this contract amounted to \$1,074.74, and this consisted mainly in the increase in size of approximately 570 feet of line from 4 inch to 6 inch, and, also, extending the 6 inch line an additional 250 feet.

A final inspection was made on May 9 with the project being accepted.



Docket Information

Number of Documents in Docket 22

Documents Dated from 5/5/1960 to 7/19/1968

Docket Compiled: 3/22/2011