



WATER-RIGHT DOCKET

Fort Pulaski National Monument

Docket No: 1

WELLS NO. 1, 4 & 8 COCKSPUR ISLAND

Administrative Agreements

01-12-1954: revocable special use permit

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
16-111
(September 1953)
(Revised)

No. _____
Previous Permit No. _____
Name _____
Year, 1954

REVOCABLE SPECIAL USE PERMIT

The Ground Water Branch FORT PULASKI

Geological Survey

U. S. Dept. of the Interior, of 11 Hunter St., S.W., Atlanta, Ga., hereby authorized

during the period from January 1, 1954, to December 31, 1954,
to use the following-described land in the above-named area:

Such land as may be required for the purpose described below located
near the main well in the utility area of Fort Pulaski National Monument;
the right to construct on this land a small concrete block or frame
structure to serve as a shelter; normal use of the monument road system.

For the purpose of drilling and maintaining an observation well

subject to the conditions on the reverse hereof and attached pages and to the payment to the Government
of the United States of the sum of 00 dollars (\$ 00),
in advance, or as follows:

payment to be made to the Superintendent by express or postal money order, certified check, or draft
payable to the National Park Service.

Signed and approved at Fort Pulaski Natl. Mon., this 30 day of December, 1953.

/s/ Ralston B. Lattimore
Superintendent.

The undersigned hereby accepts this permit subject to the terms, covenants, obligations, and reservations,
expressed or implied, therein.

Two witnesses to signatures:

/s/ Robert L. Wait * /s/ S.M. Herrick, District Geologist
11 Hunter St., S.W.
Address Atlanta 3, Ga. Address 11 Hunter St., S.W.

/s/ Gilbert M. Kirby
Address P.O. Box 204 Savannah Beach Ga. Address Atlanta, Ga.

APPROVED:
/s/ E.M. List, Acting Regional Director, Region One

Date Jan. 12, 1954

(This copy for Permittee)

16. The Geological Survey will furnish the NPS with a description of the observation well, one copy of the log, and with one copy each of the periodic observation records, measurements or tests made at the well.

C O P Y

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

Fort Pulaski National Monument
P. O. Box No. 204
Savannah Beach, Georgia

August 5, 1949.

MEMORANDUM

For: Regional Director
From: Superintendent
Subject: Water Supply Fort Pulaski National Monument

This will refer to your memorandum of August 3 to the Director with which you furnished forms giving the record of development of the several Artesian wells on Cockspur Island.

The oldest well now in use is the one at the old Quarantine Station site drilled by the U. S. P. H. S. Unfortunately we can give you very little information concerning its history as we have here no records of the U. S. Public Health Service. It is quite possible that the well was drilled much earlier than 1933. It superseded an earlier well drilled by the City of Savannah. Drawing NM-PUL-8061, dated 12/23/38 gives the approximate depth of 300 feet. On Aug. 2, 1949, a quantitative analysis showed that the water from the well had 58 parts per million total chlorine content. Some of this chlorine, however, may be attributed to the presence of HTH. At the time the analysis was made there was 0.15 p. p. m. residual chlorine. The water is exceedingly hard and quickly forms a hard white scale on cooking pots and kettles. In addition to the purposes for which the water is used mentioned in your report, it is also used in the low pressure boiler in Residence No. 3.

Well at Fort Pulaski. This well is located on the parade ground of Fort Pulaski. (The pneumatic storage tanks are in the terreplein above the gorge masonries.) The County is Chatham. The well was drilled by the Civilian Conservation Corps and was completed in April, 1936. Drilling was supervised by A. C. Carter, Foreman. It required 44 man days, \$28.08 of supervision, \$71.47 supplies and materials; \$7.16 gas and oil. The work project number was "49". I can find no description of the well, but I do not believe its depth exceeds 200 feet. The foot valve was replaced sometime prior to my arrival here by Maintenanceman Jack Hood and is approximately 1 inch in diameter. The present yield of water is about 15 gals. per minute. The water is very clear and contains little or no sulphur taste. I recall when the well was being drilled that Mr. Carter encountered

water at rather shallow depths in rotten limestone. He kept drilling until he penetrated several thin layers of granite before he was satisfied that he had obtained water in sufficient quantity and of good quality. On Aug. 2, 1949, quantitative analysis showed total chlorine of 10 parts per million. City of Savannah water contains 6.4 p. p. m. chlorine.

Navy Well. The Navy well was drilled in 1942 or 43. The new foot valve recently installed is 2" in diameter and about 8" long, solid brass. (A. E. Cory, Artesian well contractor, who installed the foot valve said that he thought the casing extended to the bottom of the well.) The present yield of the well is about 45 gallons per minute. The water is exceedingly hard and in order to use it in boilers, the Navy was compelled to install a water conditioning plant. Analysis for scale was made by Shuey & Company, Analytical Chemists, Savannah, Georgia, for the Navy. If this well is used for the water supply in the Residence-Utility Area it will be used in the low pressure boiler at Residence No. 3. We shall forward tomorrow the latest bacteriological report on this water taken at the well.

(SGD.) RALSTON B. LATTIMORE

Ralston B. Lattimore,
Superintendent.

CC: Mr. Luskett.

RECORD OF WELL DEVELOPMENT

1. Location of well: Southeast corner of Headquarters Area

Park name & symbol: Fort Pulaski NM Use of Area: National Monument
 State: Georgia County: _____ Post Office: Savannah
Well #4 on drawing 8 NM-PUL-6950
 Section: _____ Township: _____ Range: _____

Present

2. Owner: U.S. Dept. Of Interior NPS Address: Fort Pulaski NM P.O. Box 948
Savannah Georgia
 3. Driller: U. S. Navy Address: Cockspur Island, Georgia
 4. Elevation above sea level of ground at well site: a few feet above sea level
 (Give datum reference)
 5. Topography at well flat, no elevations available
 6. Date well started: about 1942 Date well completed: About 1942
 7. Type of well: drilled Diameter at top: unknown at bottom: unknown
 (Dug, driven or drilled; cable or rotary)
 8. Depth of well: More than 300' Sizes of lengths of casing: 6"
 9. Strainer; Diameter: _____ Length: _____ Description: _____
 10. Depth to principal waterbed: _____ Character of waterbed: _____
 (Gravel, sand, clay or solid rock. If solid rock state kind)
 11. Give depths to (and in parenthesis thicknesses of) other waterbeds found: _____

 12. Does the water flow at the surface without pumping? No
 If so, how high above the surface will it rise? ---
 If not flowing, how near the surface does it stand? about 12 feet
 13. Natural yield, if flowing: -- Maximum yield by pumping: we have pumped at 85 g.p.m.
 (Gals. per min.) (Gals. per min.)
we are now using about 1,000 g.p.d.
 How many feet is the water lowered by pumping? not known
 14. Quality of the water: sulphur taste
 (Hard or soft, fresh or salty - taste, odor, color)
 15. For what purpose is the water used? drinking, cooking, washing, lawn watering
 16. Cost of well: Not known
 17. On the back of this sheet give the record of the beds drilled through, any analysis that you may have of the water and any other facts not provided for above.

Name of person filling out blank A. H. Shurupoff

Date: August 3, 1949 Address: National Park Service
Region 1
Richmond, Va.

This well was drilled by the U. S. Navy about 1942 while they occupied the west portion at Cockspur Island.

This well is used only when the Quarantine well is not used.

RECORD OF WELL DEVELOPMENT

1. Location of well: Northwest corner of Headquarters Area

Park name & symbol: Fort Pulaski NM Use of Area: National Monument

P.O. Box 948

State: Georgia County: _____ Post Office: SavannahSection: Well 41 on road to NM-PVL-4037 Township: _____ Range: _____

Present

2. Owner:
- U.S. Dept. of Interior NPS
- Address:
- Fort Pulaski National Monument

P.O. Box 948 Savannah, Georgia

3. Driller:
- U.S.P.H.S.
- Address:
- Cockspur Island, Georgia

4. Elevation above sea level of ground at well site:
- a few feet above sea level
-
- (Give datum reference)

5. Topography at well
- flat no elevations available

6. Date well started:
- about 1933
- Date well completed:
- 1933

7. Type of well:
- drilled
- Diameter at top: _____ at bottom: _____
-
- (Dug, driven or drilled; cable or rotary)

8. Depth of well:
- a little less than 300'
- Sizes of lengths of casing:
- 6"

9. Strainer; Diameter: _____ Length: _____ Description: _____

10. Depth to principal waterbed: _____ Character of waterbed: _____
-
- (Gravel, sand, clay or solid rock. If solid rock state kind)

11. Give depths to (and in parenthesis thicknesses of) other waterbeds found:

12. Does the water flow at the surface without pumping?
- No

If so, how high above the surface will it rise? _____

If not flowing, how near the surface does it stand? About 12'

13. Natural yield, if flowing:
- g
- Maximum yield by pumping:
- 82 g.p.d.
-
- (Gals. per min.) (Gals. per min.)

How many feet is the water lowered by pumping? we are now using about 1,000 g.p.d.
Not known

14. Quality of the water:
- Sulphur taste
-
- (Hard or soft, fresh or salty - taste, odor, color)

15. For what purpose is the water used?
- Drinking, Cooking, Washing, Lawn Watering

16. Cost of well:
- Not known

17. On the back of this sheet give the record of the beds drilled through, any analysis that you may have of the water and any other facts not provided for above.

Name of person filling out blank A. H. ShurupoffDate: August 3, 1949 Address: Richmond, Va.

At the time this well was drilled all wells in that vicinity were flowing wells. Since that time the water level has dropped to 95' in Savannah, 12' on Cockspur Island and at Tybee Island 6'. At the time well was drilled the National Park Service did not own or administer the Island. The U. S. Public Health Service maintained a quarantine station at that time.

This well is used only when the Navy well is out of use.

RECORD OF WELL DEVELOPMENT

1. Location of well: Terreplair inside Fort Pulaski

Park name & symbol: Fort Pulaski NM Use of Area: National Monument
 State: Georgia County: _____ Post Office: P.O. Box 948
Well #8 on drawing NM-PUL-6950
 Section: _____ Township: _____ Range: _____

Present

2. Owner: U.S. Dept. of Interior NPS Address: Fort Pulaski NM
P. O. Box 948 Savannah, Ga.
3. Driller: Not known Address: Cockspur Island, Georgia
4. Elevation above sea level of ground at well site: about 8' above sea level
 (Give datum reference)
5. Topography at well flat
6. Date well started: Not known Date well completed: not known
7. Type of well: drilled _____ Diameter at top: _____ at bottom: _____
 (Dug, driven or drilled; cable or rotary)
8. Depth of well: 235 feet Sizes of lengths of casing: not known
9. Strainer; Diameter: _____ Length: _____ Description: _____
10. Depth to principal waterbed: _____ Character of waterbed: _____
 (Gravel, sand, clay or solid rock. If solid rock state kind)
11. Give depths to (and in parenthesis thicknesses of) other waterbeds found:
- _____
12. Does the water flow at the surface without pumping? No
 If so, how high above the surface will it rise? --
 If not flowing, how near the surface does it stand? about 12 feet
13. Natural yield, if flowing: -- Maximum yield by pumping: not known
 (Gals. per min.) (Gals. per min.)
 How many feet is the water lowered by pumping? not known
14. Quality of the water: sulphur taste
 (Hard or soft, fresh or salty - taste, odor, color)
15. For what purpose is the water used? Drinking and fire protection
16. Cost of well: Not known
17. On the back of this sheet give the record of the beds drilled through, any analysis that you may have of the water and any other facts not provided for above.

Name of person filling out blank A. H. ShurupoffDate: August 3, 1949 Address: NPS Region One
Richmond, Va.

5

Other Supporting Information



IN REPLY REFER TO:
D-5039

UNITED STATES
DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE
Fort Pulaski National Monument
P. O. Box 98
Savannah Beach, Georgia

April 15, 1963

Memorandum

To: Regional Director, SE Region
From: Superintendent, Fort Pulaski NM
Subject: Superintendent's Narrative - Completion of Contract
14-10-0131-918, Water Supply Well

Invitations to bid on well were issued April 27, 1962, and the bids were opened May 23. Six bids were received, and the contract was awarded to Woodrow Sapp, Brunswick, Ga., whose bid of \$1,764.75 was low. The well was started June 30 and completed July 9. Depth of well is 440 feet, with 8" casing for 139 feet, which is about 19 feet into the limestone.

Water level in the well is at minus 20 feet, and when pumped at 550 g.p.m., there is a drawdown of only 3 to 4 feet. It is estimated that, with an adequate pump, the well will yield 1,000 gallons or more per minute.

The well will serve the new Visitor Center and will furnish a fresh water supply for the moat.

Ralston B. Lattimore
Ralston B. Lattimore
Superintendent

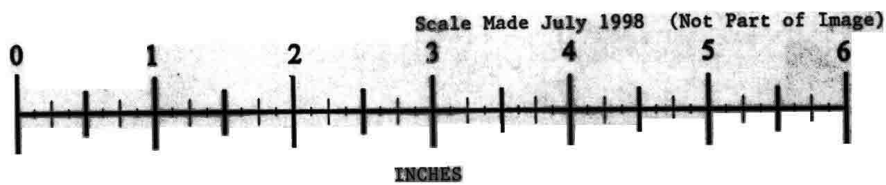
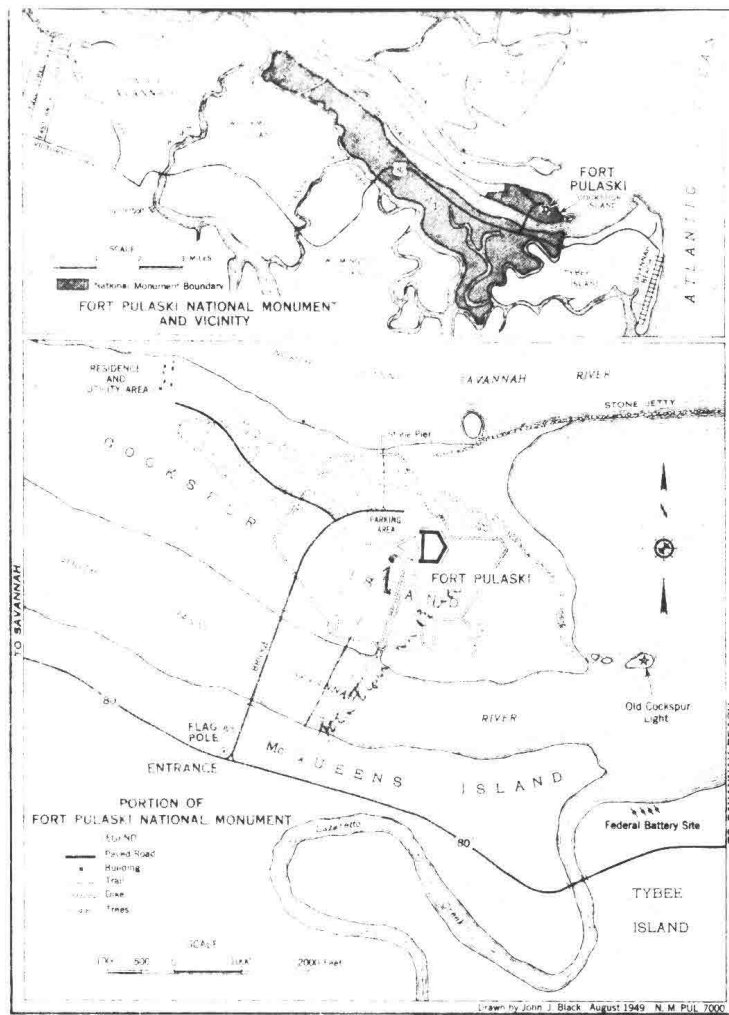
REGION <u>SE</u>	AREA <u>Fort Pulaski National Monument</u>	COUNTY <u>Chatham</u>	STATE <u>Georgia</u>
PROJECT OR JOB TITLE <u>Improvements to utilities (water supply well)</u>		PCP NO. <u>U-9-4 (Per.)</u>	
LOCATION IN AREA <u>Beside new Visitor Center (See specifications for location and vicinity map)</u>		MASTER PLAN NO.	BUILDING NO.
WORKING DRAWING NO. AND TITLE			
APPROPRIATION TITLE AND SYMBOL <u>14-1035 General Ledger Acct. No. 102.1</u>			WORK ORDER NO. <u>B-15</u>
CONTRACT NO. <u>14-10-0131-918</u>	DATE WORK STARTED <u>6-30-62</u>	DATE WORK COMPLETED <u>7-9-62</u>	
NAME OF CONTRACTOR <u>Woodrow Sapp</u>		ADDRESS <u>2119 Kay Ave., Brunswick, Georgia</u>	

[illegible]

PERSONAL SERVICES	EQUIPMENT	MATERIALS AND SUPPLIES	
OTHER			
"See attached 10-174A"			
CHANGE ORDERS			
ORIGINAL CONTRACT AMOUNT	FIRST	SECOND	THIRD
FINAL CONTRACT AMOUNT	FOURTH	FIFTH	SIXTH

SUBMITTED BY (Name and title) <u>Robert H. Lattimore - Superintendent</u>		DATE <u>4/8/63</u>
APPROVED BY (Name and title) <u>Robert H. Lattimore - Superintendent</u>		DATE <u>4/8/63</u>
COST VERIFIED: <u>V-103-101</u> (ATTACH NARRATIVE STATEMENT, PHOTOGRAPHS, AND "AS BUILT" DRAWINGS TO THIS FORM)		

5/22/63 T.J.BAER, Regional Accountant



COPY

154

UNITED STATES
DEPARTMENT OF THE INTERIOR
National Park Service
Region One
Richmond, Virginia

March 22, 1956

Memorandum

To: The Director

From: Assistant Regional Director, Region One

Subject: Test Data On Wells Drilled on Cockspur Island, Fort Pulaski
National Monument, by U. S. Geological Survey

Attached is letter to the Superintendent, Fort Pulaski National Monument from Mr. M. A. Warren, Hydraulic Engineer, Ground Water Branch, Geological Survey, together with a copy of the log of an 8" test well drilled in May 1954, on Cockspur Island, Fort Pulaski National Monument, and the log of a 3" well drilled a few feet from the first well on February 21-22, 1956. This information has been furnished pursuant to the provisions of the unnumbered special use permit issued to the Ground Water Branch December 30, 1953, and approved January 12, 1954. Also enclosed are two analyses of samples of water collected from the Monument's 6" well (No. 345, Chatham County) - known by us as the Navy well - on July 27, 1943, and February 24, 1955.

/s/ E. M. Lisle

E. M. Lisle
Assistant Regional Director

copy

UNITED STATES
DEPARTMENT OF THE INTERIOR
Geological Survey
Room 208; Custom House; Savannah, Ga.

March 12, 1956

Mr. Ralston B. Lattimore
Superintendent of Fort Pulaski National Monument
National Park Service
U. S. Department of Interior
Savannah Beach, Ga.

Dear Mr. Lattimore:

Enclosed herewith are the copies you requested of the logs of the two wells drilled by the U. S. Geological Survey on Cockspur Island.

The 8-inch well was drilled in May 1954, and Mr. Robert Wait of the Atlanta office of the U. S. Geological Survey collected the samples. The palentology for this well was probably by Dr. S. M. Herrick of the Atlanta office. This well has 8-inch casing to a depth of 185 feet and was drilled to a depth of 740 feet. The present depth is about 725 feet. When tested recently this well yielded about 770 gpm with a $5\frac{1}{2}$ foot drawdown. The chloride content of the water pumped from this well during the pumping test was about 20 to 25 ppm.

The chloride content of the three inch well, 160 feet deep with 3" casing to 124 feet was about 10 ppm. When pumping 60 gpm this well had a drawdown of 10.9 feet.

Also enclosed is chemical analyses of the water from the 6-inch well you are presently using, which were taken July 27, 1943 and February 24, 1955. This well was reported by Mr. Showalter, the driller, to be 535 feet deepth with 6-inch casing 352 feet. The drawdown with an estimated pumpage rate of 40 to 50 gpm was 4.5 feet. Mr. Showalter reported a yield of 200 gpm with a drawdown of less than 20 feet. However, I don't think he made an accurate measurement of discharge or drawdown.

Thank you very much for the cooperation and assistance you have given us with regard to our work on Cockspur Island. If we can be of further assistance please let us know.

Very truly yours,

/s/ M. A. Warren
M. A. Warren
Hydraulic Engineer

Log of 3-inch well (Chatham Co. 441) at Fort Pulaski National Park, drilled February 21 - 23, 1956 by Layne-Atlantic Company for U. S. Geological Survey.

Log prepared by

F. B. Hudson

<u>Description:</u>	<u>Depth in Feet</u>
Sand medium, dark gray, humic	0.0 - 0.5
Sand medium, buff, limonitic streaks	0.5 - 3.0
Sand, medium, blue clay streaks	3.0 - 4.0
* Water at 4'	
Sand medium, micaceous; blue clay streaks passing into dark green colored silty clay	4.0 - 10.0
Gray to dark-green colored, micaceous, silty clay with small amount of sand; plus abundant oyster shells	10 - 55
Sand coarse, gravelly, white, siliceous; some dark gray clay; macro fossils	55 - 65
Pale-green colored, sandy, phosphatic clay; brown colored phosphatic pebbles, common	65 - 82
Same as 65 - 82; plus frequent fragments of light-brown colored, sandy, phosphatic, dolomitic rock	82 - 92
Same as 65 - 82	92 - 110
Mostly dense, gray to white, sandy, phosphatic limestone carrying macro-shells and molds of shells and scattered fragments of pale-green colored, sandy clay (latter probably weathered limestone)	110 - 132
Do. plus scattered fragments of soft, somewhat weathered (?), cream-colored, nodular, fossiliferous limestone	132 - 142
Predominately cream colored, soft, fossiliferous limestone	142 - 160

Remarks: Drilling speed for hole was about 15 minutes for 20 feet of depth, except for depths 110 to 113 feet which required about 15 minutes. Three-inch galvanized pipe grouted in 7 $\frac{1}{2}$ -inch hole to the depth of 126 feet, total depth 160 feet, yield 60 gpm with 10.9 feet of drawdown.

Analyses of Water From Well 345 Snatham Co. (6" Well on Cockspur Island, 535 Feet
Deep With 352 ~~Feet~~ ^{Feet} of 6-Inch Casing.)

<i>Feet*</i>	Sample collected July 27, 1943 ppm	Sample collected February 24, 1955 ppm
Silica (SiO ₂)	40	38
Iron (Fe).....	.01	.01 <u>1/</u>
Calcium (Ca).....	18	17
Magnesium (Mg).....	16	16
Sodium (Na).....		46
Potassium (K).....	48 (Calc. Na + K)	3.5
Bicarbonate (HCO ₃).....	149	0
Sulfate (SO ₄).....	23	21
Chloride (Cl).....	48	50
Fluoride (F).....	.3	.8
Nitrate (NO ₃).....	.0	.1
Total dissolved solids.....	260	255
Total hardness as CaCO ₃	111	103
Color		5
pH.....	7.6	8.1
Specific conductance at 25° C (micromhos)		420

1/ In solution at time of analysis. Total Fe .02.

* Mis print confirmed by Supt's memo of 1/15/54 to Reg.
Director.

(surplus) COPY

Refer to: L54 FORP

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

Fort Pulaski National Monument
P. O. Box No. 204
Savannah Beach, Georgia

December 28, 1949.

Memorandum

To: Regional Director
From: Superintendent Fort Pulaski NM
Subject: Fort Pulaski Wells - Past and Present

Unfortunately, without laborious research, we cannot answer with certainty the questions relating to the history of the development of Water Systems on Cockspur Island requested by the Chief of the Water Resources Branch. If the data is essential to some study or paper, we shall be glad to devote time to it later in the year. Information regarding the operation of the U. S. Public Health Service Quarantine Station on Cockspur will have to be obtained from the Surgeon General, U. S. P. H. Service, Quarantine Division, Washington, D. C.

In the earliest colonial period (1736) shallow wells dug on Cockspur Island produced potable water, which, however, was strongly saline.

In the construction period of Fort Pulaski, reliance seems to have been on the collection and storage of rain water for drinking purposes. There were 10 cisterns (20,000 gal. cap. ea.) in Fort Pulaski and at least as many others attached to structures outside of the fort. Apparently the Confederates depended on this rainwater system, but augmented it with water produced by shallow wells, dug, not drilled.

Federal forces, finding the cistern water on Cockspur contaminated, installed two large boilers and condensers, drew water from the moat and from it made fresh water for drinking purposes. It is quite possible that drinking water was obtained in this manner from about 1862 until the fort was abandoned about 1880.

In 1891 the Savannah Quarantine Station operated by the City of Savannah was moved from Oysterbed Island to Cockspur Island. At this time the City of Savannah was already using Artesian wells, the first three wells having been drilled in 1885. In this year three other wells were drilled at Tybee Island. As far as we know rain water was never used at the Quarantine Station on Cockspur, and it is probable that the first well was drilled on Cockspur in 1891. During the Spanish War activity was briefly renewed at Fort Pulaski and the wells at Battery Hambright and in the fort were drilled

about 1898. When drilled, these were flowing wells. They continued to flow until the middle 20's when the water table was lowered through the excessive pumping by the city of Savannah directly west of Cockspur. In 1934 the wells at Hambright and in the fort could be operated by a handpump after priming. In 1935 the Union Bag factory began operations, drawing hundreds of millions of gallons of water from its own wells annually. The water table again dropped and by 1936 the old wells in Fort Pulaski and at Battery Hambright became brackish. This necessitated drilling well No. 8, which is used in the fort today.

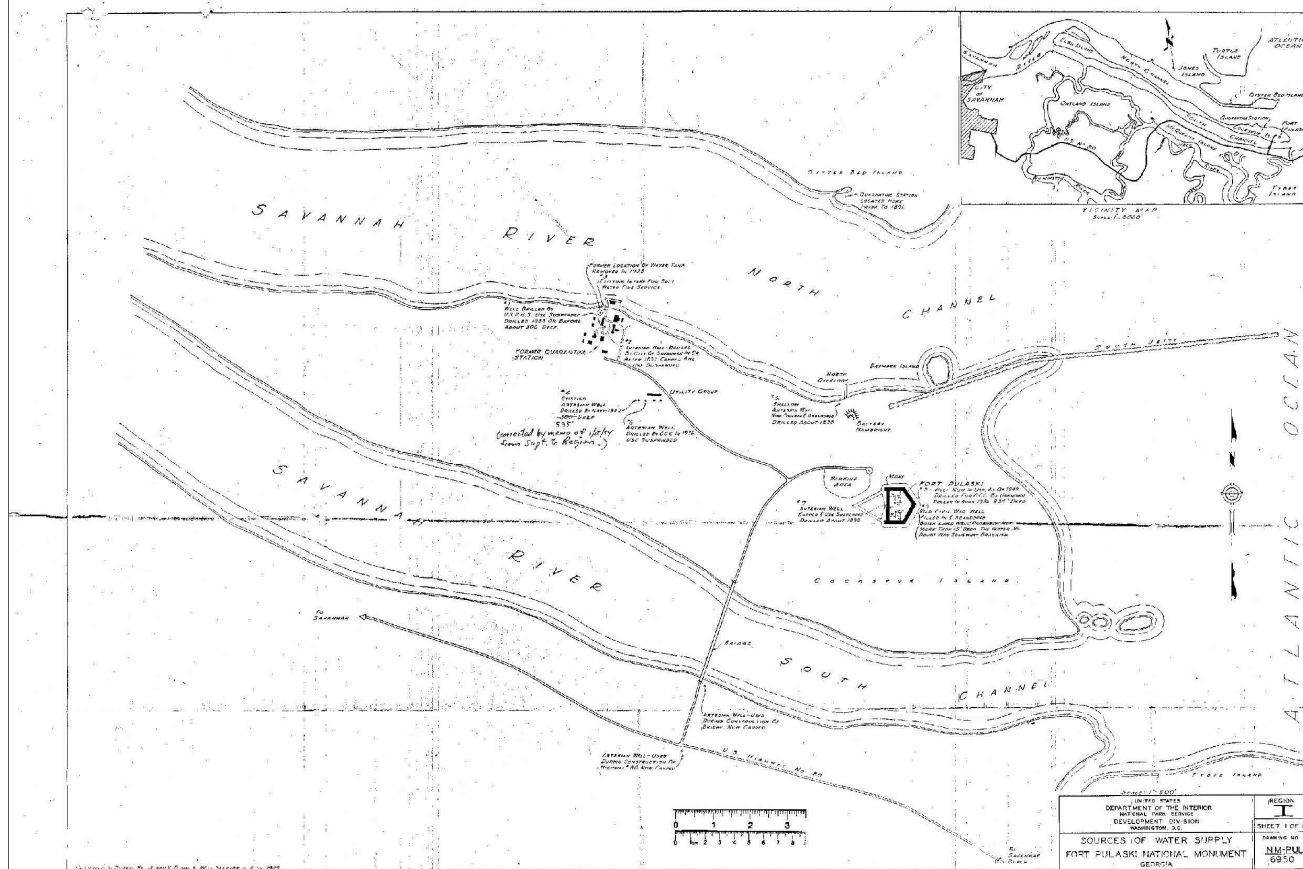
There are no flowing wells close to Savannah today. To find them one must go at least 15 miles south or north of the city.

Artesian water has always been in abundant supply and one does not have to go as deep as 235-300 feet to get it. Well No. 8 in Fort Pulaski is probably much less than 200 feet. Water can be obtained from about 50 feet downward to a depth of about 1,500 feet. The depth at which water is struck, however, varies considerably even at short distances.

Even earlier than 1900 nearly every country place in the vicinity of Savannah already had its private Artesian well. There was good pressure and hydraulic rams were utilized to lift a part of the water to tower tanks. Wells ceased to flow and the use of rams was discontinued about 25 years ago.

Ralston B. Lattimore,
Superintendent.

CC: Fort Sumter.



Docket Information

Number of Documents in Docket 20

Documents Dated from 8/3/1949 to 5/22/1963

Docket Compiled: 3/22/2011