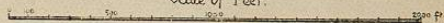


SOUTHPORT HARBOR. CONN.

June 30th 1879.

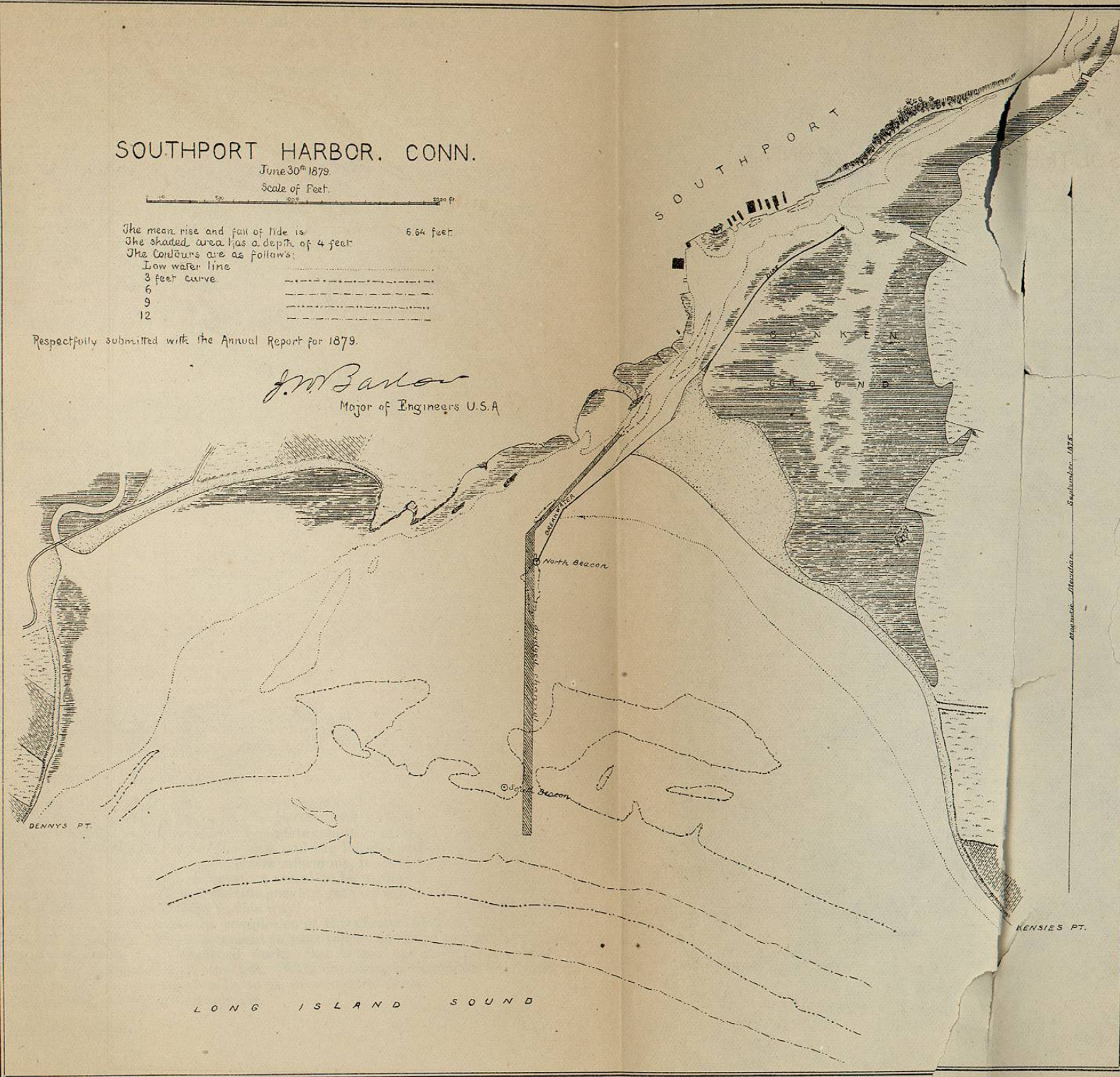
Scale of Feet.



The mean rise and fall of tide is 6.64 feet.
The shaded area has a depth of 4 feet.
The contours are as follows:
Low water line
3 feet curve
6
9
12

Respectfully submitted with the Annual Report for 1879.

J. M. Baker
Major of Engineers U.S.A.



REPORT OF MR. ROBERT RANSOM, ASSISTANT ENGINEER.

UNITED STATES ENGINEER OFFICE,
New Berne, N. C., July 5, 1879.

CAPTAIN: I have the honor to submit the following report of the improvement of Neuse River for the year ending June 30, 1879.

After examination it was determined to use the facts given in Mr. William Popp's report of a survey of the river, made under the direction of Maj. W. P. Craighill in 1871, as a basis of operations, taking care that any discrepancies between what is there stated and what now exists should be properly considered.

The work projected to be done with the first appropriation of \$40,000 was to consist of moving artificial obstructions above and below New Berne, placed there during the late war between the States; to clear the channel as far up as possible from New Berne towards the railroad bridge south of Goldsboro'; to try some experimental jetties of economical construction upon bar or bars, with a view thereby to deepen the channel; and to dredge, if practicable, through some short bends.

During part of September, after the work was put in my charge, machinery was secured, and on the 1st of October work was begun removing obstructions at Fort Point, 3 miles below New Berne. A brig 110 feet long and a schooner 80 feet long were blown up and the material removed. Some piles were extracted. A line of "Yankee-catchers" just below these sunken vessels, and another at Johnson's Point, 3 miles still lower down the river, were broken up and removed, thus widening the channel over this part of the river 550 feet.

Finding that much inconvenience to navigation arose from a bar in the river on the east front of New Berne, near the foot of Pollock street, a channel 300 feet long, 100 feet wide, and 8 feet deep was dredged through the bar, by which nearly a mile in distance is saved. This channel has filled a little, and in the future it should be widened, deepened, and extended.

Beacons were placed at short intervals, marking the very crooked and difficult channel from New Berne through the broad and shallow reach of the river to the mouth of Linkfield Channel.

At the upper blockade, 3 miles above New Berne, it was deemed unnecessary at present to touch the obstructions in the two channels to the south, but "Linkfield Channel," carrying the main current, was opened 150 feet wider than before by blasting and removing the sunken vessels and cribs.

From this last point to the railroad bridge below Kinston the work was confined to cutting off overhanging growth, removing snags, stumps, fallen trees, and the remains of old bridges.

The crib-work obstructions below Kinston were left to be removed at low-water, and will remain till the machinery returns from up the river, as there is sufficient space for the passage of boats now on the river.

"Pitch Kettle" is a sharp bend through which the river runs swiftly cutting a channel from 15 to 35 feet deep, and making more fall in a few hundred yards than in several miles above and below it. It was thought advisable to cut through this short bend, but upon more reflection and closer observation the project was given up upon the score of too great cost and questionable advantage.

About 10 miles below Kinston are "South West Bends," a succession of short, abrupt turns or elbows with rapid current of good depth, which were much choked with the accumulation of heavy logs, large stumps, and drift.

Here it was contemplated to make another cut, but owing to the instability of the soil and the great cost, with a doubt as to any permanent good, it was deemed best to leave such work for the future, should it be determined proper to do it.

At both the railroad and county bridges below Kinston, approaches to the draws were constructed to protect passing boats from injury. They are built of cypress piles deeply sunk, and fastened near the top by oak beams bolted to them with iron rods.

Above Kinston the labor of clearing the channel and banks was greatly increased and progress correspondingly retarded. In the "Let Alones," that most difficult part of the river for navigation, there is a succession of sudden sharp bends for about 7 miles, where the current is greatly accelerated, and where the amount of obstructive matter in several places almost dammed the river. The removal of these accumulations required much time and hard labor. The wash of the banks and the changes in the channel since clearing it have been very marked. The obstructions consisted of trees varying in size from 6 inches to 6 feet in diameter and from 20 feet to more than 100 feet long; of cut logs, whole rafts of sunken timber, and of sunken flatboats. Many of the imbedded trees lay under others growing upon the banks, the latter large in size.

The clearing of the channel has progressed to about 15 miles above Kinston. During the fall and winter and well into the spring the river was much swollen, and prevented that completeness of work which is most satisfactory. The clearing out of the channel will be thoroughly finished nearly up to the Wilmington and Weldon Rail-

road before the present appropriations shall have been expended. The great wash of the banks necessitated much labor in removing timber which would soon have fallen into the river.

In the reach between the two abrupt bends at and below Kinston 5 jetties have been constructed at right angles to the current, 150 feet apart, and about 100 feet long each, the object being to remove the bar in this reach, which at low-water was covered only about 18 inches. The jetties are constructed of cypress and heart-pine piles and heart-pine cap-sills and sheet piling. The cap-sills are shouldered on to and fastened to the piles with wrought-iron bolts, and the sheet piling nailed to the sills with 60-penny cut-nails. Four of the jetties have double rows of piles braced together. The piles are driven from 12 to 16 feet and penetrate deep into compact blue marl, and all the sheet piling reaches well into the same firm bed. The shore ends run well back into the bank and are protected by crib-work revetments. The top of each jetty is upon the same level and about 2½ feet above lowest water. A diagram showing the river and work at this point will accompany this report.

Although this work is not quite completed, the result of the action of the jetties is satisfactory beyond my most sanguine anticipations. The river is now about as low as the "oldest inhabitant" has seen it, and there is not less than 3 feet of water at any point in the contracted channel.

It is proper to state in this connection that last fall an attempt was made to put in these jetties in a very cheap way, but the winter rise came, put a stop to the work, and destroyed what had been done.

The work has been accomplished with hired machinery and hired labor, and the total expenditure up to the 30th of June has not exceeded \$30,000.

The Neuse River in the main flows through an alluvial region which I am satisfied is underlain as far up as the Wilmington and Weldon Railroad by a compact blue marl. This marl furnishes a bed into which piles can be fixed, and experiments have shown that it can be reached within reasonable depth anywhere below the bed of the river.

There are some ledges of conglomerate sandstone crossing the bed of the stream which will demand and shall receive attention, but, until a minute examination be made of them, conjecture would take the place of fact as to the propriety and the expense of their removal.

The present appropriations will be expended, unless otherwise directed, in clearing the river up to the Wilmington and Weldon Railroad of obstructions, and in going over similar work upon that part already passed; in removing the artificial obstructions still left; in the construction of jetties on bars, upon the most effective and economical plan which may be found practicable; and in placing protecting barriers of a rough character in the concave banks of elbows to prevent caving, these jetties and barriers having for their object the deepening or fixing of the channel.

With further appropriations the improvement may well be continued up to and beyond Smithfield in Johnson County.

From data taken from a report of the late Col. W. B. Thompson, chief engineer, made to the governor of North Carolina in 1852, the difference in level between the surface of the river at New Berne and Watson's Mills, about 12 miles from Raleigh, a distance of 165 miles, is 121 feet. From New Berne to the "South West Bends," 40 miles, the average rise is 4½ inches; from "South West Bends" to Wilmington and Weldon Railroad, 56 miles, it is 8½ inches; from Wilmington and Weldon Railroad to Smithfield, 59 miles, 10 inches; and from Smithfield to Watson's Mills, 10 miles, 1 foot 9 inches per mile over the respective distances. Over these different distances the fall is not uniform, being greater, as a rule, in the crooked than in straight parts of the river.

The difficulties met in improving rivers of the character of the Neuse are well understood by engineers and continue to present many unsolved problems. To make such works effective and lasting requires much experience upon the particular stream to be improved; and to keep the expense within a limit commensurate to the benefit expected to accrue to the people interested and to the general results which may be reasonably expected should be always well remembered.

The Neuse drains a fair agricultural region in the heart of North Carolina, and upon its banks are extensive forests of excellent timber of various kinds. The inhabitants along much of its course have no facilities for communication with the outer world. The whole region from Raleigh to the mouth of the river would share the benefits resulting from its improvement as far as it can be made navigable.

Here it may be properly stated that Contentnea Creek or River running through several productive counties is a large tributary of the Neuse. It should be surveyed and its improvement early begun, if appropriations can be obtained for such purposes.

The survey of Mr. Popp, made in 1871, was done more hastily than thoroughness requires, and at a stage of water which prevented accurate observation. Estimates based upon that report would be unreliable, and conclusions drawn from it would most probably be erroneous.

An annual expenditure of \$60,000 can be advantageously applied, and with a total outlay of \$400,000 the Neuse can be made permanently navigable, for boats drawing 3 feet, as far as Smithfield. The appropriations made thus far, however, only allow the work to proceed as far as Goldsborough.

Below will be found some statistics relating to produce and commerce.

The work is in the second collection-district of this State.

The nearest port of entry is New Berne.

Custom-house revenue collected	\$2,649 29
Number of vessels cleared for foreign ports in last fiscal year	21
Tonnage of same	2,216
Number of vessels entered from foreign ports	16
Tonnage	1,703
Number of vessels engaged in coasting trade registered and accounted for ..	181

There is no record of river steamers, and those sailing between here and Norfolk and Baltimore.

The estimated tonnage carried by steamers to and from the last two named places is 50,000, and of other coastwise unregistered craft 25,000, and of river steamers 15,000.

Over 18,000 bales of cotton were shipped from this port during the past season, and a new and growing industry in trucking promises an active business.

About 12,000 packages of fresh fish have been forwarded to various points.

To T. A. Henry, esq., collector, I am indebted for statistics of vessels.

The employes on the work have generally rendered a cheerful service, and I am particularly obliged to Mr. Reid Whitford, a young engineer, one of the overseers, for intelligent and valuable aid.

Very respectfully, your obedient servant,

R. RANSOM,
Assistant Engineer.

Capt. CHAS. B. PHILLIPS,
Corps of Engineers, U. S. A.

EXAMINATION OF NEUSE RIVER FROM SMITHFIELD TO GOLDSBOROUGH, NORTH CAROLINA.

UNITED STATES ENGINEER OFFICE,
Norfolk, Va., January 23, 1879.

GENERAL: By your letter of the 8th of July last, I was charged with the execution of an examination or survey of the Neuse River from Smithfield to Goldsborough, N. C., as provided for in the act of Congress dated June 18, 1878.

In a report to you, dated August 13, 1878, I stated:

The Neuse, above Goldsborough, is a very small stream. The proposed clearing out of snags and other obstructions (under the late appropriation) below Goldsborough naturally makes the people on the upper river anxious for improvements.

I also stated that, with the limited amount of funds at my disposal, I could only make a mere examination of this portion of the river. Your authority to proceed with such an examination having been received, I placed the field work in the hands of my assistant, Mr. J. M. Wolbrect, who has conducted the examination with much credit to himself, considering the amount of time and means allotted him.

Mr. Wolbrect's report, accompanied by a tracing from his original chart of the upper portion of the river, is transmitted herewith.

The Neuse River, above Goldsborough, is a very narrow and tortuous stream. It was formerly navigated by light-draught steamers as far as Smithfield, a distance (by river) of about 62 miles above Goldsborough. Of late years this navigation has ceased, mainly, no doubt, on account of the neglected condition of the lower river, which is now being rapidly cleared of its obstructions, both natural and artificial, an appropriation for this purpose having been made on June 18 last. As my re-

ports, from time to time, upon the improvement of the Lower Neuse have indicated, trade upon the river has been greatly stimulated since operations have been commenced, and the people on the upper river are anxious to share in the increased facilities for navigation.

The present project for the improvement of the Lower Neuse contemplates an unobstructed channel of at least 5 feet of water (at low stage) as high as Goldsborough. From the latter point to Smithfield the modest wants of commerce will be satisfied by securing a channel of 3 feet during the nine "flush-water" months of the year. Mr. Wolbrect has made his estimates upon this basis. He proposes, in addition to cleaning the river bed of snags and other obstructions, to construct 200 linear feet of solid dike and about 1,500 linear feet of simple wattled diking, and to excavate at the four shoals indicated upon his map 4,740 cubic yards of rock to secure a channel 50 feet in width. This rock is mostly composed of small bowlders; hence the low estimate that he makes for the cost of its removal. His total estimate of the cost of carrying out his plan amounted to \$20,761.84. I think his estimate ample to carry out the work proposed, all of which seems to me to be proper to be made.

Should Congress fail to provide specially for the improvement of this portion of the river, I would suggest the propriety (in case of future appropriations for the Neuse) of omitting the clause which now confines the work to points below Goldsborough, and allowing the work to progress as high as Smithfield.

The Neuse River is in the collection-district of New Berne, N. C.

I am, general, very respectfully, your obedient servant,
CHAS. B. PHILLIPS,
Captain of Engineers.

Brig. Gen. A. A. HUMPHREYS,
Chief of Engineers, U. S. A.

REPORT OF MR. J. M. WOLBRECT, ASSISTANT ENGINEER.

NORFOLK, VA., January 21, 1879.

CAPTAIN: In compliance with your instructions, I have the honor to submit a report of the examination of the Neuse River from Goldsborough to Smithfield, N. C., made under your direction in the month of November, 1878.

The object of this examination, as stated by you, was to determine the number and character of obstructions to navigation in the river, and form an estimate of the cost of removing the same. In consequence of the limited means allotted for this purpose, a thorough examination could not be made, but it is hoped that the information obtained will be found sufficiently minute for the purpose desired.

Smithfield, the northern limit of this reconnaissance, is situated on the eastern bank of the Neuse River, 23 miles northeast of Goldsborough, the southern limit. It is 4 miles distant from Selma, the nearest railroad station, to which place most of its produce for shipment is transported. It is the center of a fairly productive country, is the county seat of Johnson, and has about 600 or 700 inhabitants and 10 stores.

Previous to the war steamers made regular trips to its wharves from Goldsborough, and, according to the statement of some of the old residents, did an extensive business in transporting supplies and produce, though at present there are no statistics attainable for learning the exact figures.

The surrounding country is dotted with plantations of all sizes, and the country road from Smithfield to Goldsborough is exceptionally well supplied with the largest kind.

The produce from these is hauled by wagon to the nearest railroad station, which in some cases is 15 miles distant. The expense of transporting a bale of cotton, for instance, by this means, amounts in these extreme cases to \$3 and \$4.

Timber of all kinds is abundant, but the pine, cypress, and white oak predominate. On the bottom lands of the Neuse, where the periodic high water has prevented the clearing of the land, the timber is very large and covers extensive tracts.

Above Quaker Neck, the river is bordered on both sides by heavy timber and brush; the cultivated fields, in most cases, being on the highest bottoms, some little distance from the water's edge.

The houses are generally situated on the uplands from 2 to 3 miles back. The bottom lands are extensive and very fertile. Some of the lower bottoms have been reclaimed by the use of dikes, and others are now thus being reclaimed.

The river at Smithfield is 130 feet wide, and at the time of this examination its least depth was 2.8 feet; it was then about 14 or 16 inches above extreme low-water, and about at the lowest stage attained during the 9 "flush-water" months.

Its general course is southeasterly, and though the air-line distance to Goldsborough is 22 miles, the river in its tortuous course makes the distance about 62 miles. The fall is slight and very regular, the average current being about 2½ miles per hour. There are 2 small falls, viz, "Heath's Fish Dam" and "Kennedy Shoals," neither being more than 1 foot in height. The bends, of course, are numerous, and, as can be seen from the accompanying chart, are very sharp. During the freshets the water finds its way across the narrow necks of these bends, washing out deep gullies and forming what are called "breakovers." Some of these breakovers have running water during ordinary stages of the river, and a few have become a new channel for the river, leaving the "old river" a stagnant pool. A notable example of this is shown on the chart a little below Richardson's Ferry.

The obstructions encountered were found to consist of fallen trees, leaning trees, snags and roots, drift, sand shoals, and rock shoals. The fallen trees were most numerous, and were of all sizes and in all places—some of them reaching almost entirely across the river, where they had fallen by the river's own action in undermining their roots, and others strewn upon the banks by the winds or left there by the subsiding waters; some with the branches under water and the roots exposed, while others appeared to be growing in the middle of the stream.

The snags are numerous and formidable in appearance, but will offer less resistance to removal than might be imagined. Many of the leaning trees are in the way of passing vessels; some are just ready to fall, while others may stand for an indefinite period.

The drift is not very extensive, and much of it is in such position as to be easily removed.

The sand shoals are comparatively few, considering the length of river. They are of hard sand and gravel. Some of them are due to the fallen trees and logs above them forming eddies and counter currents, and others are due to the abstraction of part of the water by the breakovers. The rock shoals are 4 in number, 1 about 2 miles below Smithfield, called "Heath's Fish Dam Shoals," and the others opposite Mr. Kennedy's near Quaker Neck.

The bed-rock of these shoals is of a slaty formation, covered with bowlders and loose rock. As the river at the time of the examination, as stated before, was from 14 to 16 inches above the low-water usually prevalent during the summer months, and as the soundings even at that stage showed at many places below 3 feet of water, I concluded that to make the river navigable for the year round would require more outlay than the benefits accomplished therefrom would justify. The people are desirous, simply, of obtaining cheap transportation for their produce and their supplies; they stand in little need of this transportation during the summer months when they are employing their time in the fields on the produce that is to be shipped later on. I have spoken with several of the prominent citizens on the subject, and they have all expressed themselves as satisfied with an improvement that would contemplate a 9 months' navigation for steamers drawing 3 feet water.

The following estimate was made with that object in view, and I feel confident that if the appropriation is made it will result beneficially, not only to the people of that section, but in time to the government itself.

The item of diking in the estimate is for a brush and mud dam across the river at the "Big Breakover" to confine the water to the "breakover channel," thus shortening the distance by nearly 2 miles. The wattle dams are for the purpose of preventing a flow through the other breakovers during the ordinary stages of the river.

ESTIMATE.	
714 fallen trees, at \$5.....	\$3,570 00
236 snags and roots, at \$10.....	2,360 00
580 leaning trees, at \$3.....	1,740 00
Drift and brush.....	750 00
4,740 yards rock excavation and removal of loose rock, at \$1.50.....	7,110 00
10,972 yards sand dredging, at 20 cents.....	2,194 00
200 feet diking, at \$2.....	400 00
1,500 feet wattle dams, at 50 cents.....	750 00
Superintendence, contingencies, add 10 per cent.....	1,887 44
Total.....	20,761 44

Very respectfully, your obedient servant,

Capt. CHAS. B. PHILLIPS,
Corps of Engineers, U. S. A.

J. M. WOLBRECHT, Assistant Engineer.

H 12.

IMPROVEMENT OF TRENT RIVER, NORTH CAROLINA.

A survey of this river was directed by act of Congress approved June 18, 1878. The survey was made during the month of December last, and report upon same, accompanied by a plan. An estimate of the cost of improvement proposed was submitted January 27, 1879, and was printed in House Ex. Doc. No. 68, Forty-fifth Congress, third session.

The improvement proposed consists in the removal of all obstructions, such as snags and fallen and overhanging trees, between the towns of Pollocksville and Trenton (a distance of 22 miles), so as to secure a channel 3 feet in depth at an extreme low summer-stage of water.

Below Pollocksville the river is comparatively free from obstructions, and 6 feet of water can be carried at all stages. It is proposed, however, to cut off a bend about 4 miles below the town. It is also proposed to build about 400 linear feet of solid dike to divert the water from portions of the old river-bed into cuts-off that have been made from time to time by the people upon the river, and also to build about 600 linear feet of wattle-work to protect the banks at certain points. The estimated cost of the whole improvement amounts to \$22,000.

The act of March 3, 1879, appropriated \$7,000 for this work. A project for the expenditure of this amount was submitted to the Chief of Engineers on the 22d of April, 1879, and was by him approved. It is proposed to devote the appropriation (when available) to carrying out the work indicated above, as far as available funds will permit, commencing at Pollocksville and clearing out the river above.

The commerce to be benefited by an improvement of this river is mainly prospective, and it is impossible to state the exact amount of produce which will be diverted from its present channels and seek the river as its cheapest outlet; but the river flows through a fertile and well cultivated section of country, and large crops of corn, tobacco, and cotton are produced annually. It is estimated that from 7,000 to 10,000 bales of cotton pass through the town of Trenton alone, on wagons, on its way to Kinston and other points on the railroad. With an improved navigation this cotton could be shipped to New Berne for about one-quarter the present cost of transportation, and other products could be shipped at proportionally low rates.

The Trent River is in the collection-district of New Berne.

Money statement.

Amount appropriated by act approved March 3, 1879.....	\$7,000
July 1, 1879, amount available.....	7,000
Amount (estimated) required for completion of existing project.....	15,000
Amount that can be profitably expended in fiscal year ending June 30, 1881.....	15,000

SURVEY OF TRENT RIVER, NORTH CAROLINA.

UNITED STATES ENGINEER OFFICE,
Norfolk, Va., January 27, 1879.

GENERAL: An act of Congress approved June 18, 1878, provided for an examination or survey of the Trent River, North Carolina.

In my project for the prosecution of this survey, dated August 13, 1878, I had the honor to state:

The Trent is on a possible line of water-communication between the Neuse and the Cape Fear. It will be surveyed in connection with survey of water-routes south from Norfolk, Va.

I expected at that date to intrust the survey of the Trent to one of the two parties organized for the survey of "water-routes," in the same way that I caused to be made the survey of North Landing River, Virginia.

Without wishing to anticipate any portion of my report hereafter to be made upon water-routes, I must here explain that I found upon investigation, and after reconnoissances made personally, that it was very improbable that the northern terminus of a canal to connect with the Cape Fear River would ever be located on the Trent. I therefore placed the survey in charge of my assistant, Mr. J. M. Wolbrect, who had already been engaged on other of the examinations and surveys provided for in the river and harbor act, leaving it to be decided in the future whether or not the river should be more thoroughly surveyed with the special object of seeking a proper outlet for a canal.

Mr. Wolbrect conducted this survey during the month of December last. He has since plotted the results of his work, and his report, accompanied by a tracing from his original map of the survey, is transmitted herewith.

The Trent is the principal tributary to the Neuse River. The city of New Berne is located at the junction of the two streams. The distance from New Berne to Trenton, the portion of the river examined, is about 43 miles.

The portion of the river from New Berne to Pollocksville, a distance of 21 miles, is comparatively free from obstructions, and 6 feet of water can be carried at a low summer stage of water. One steamer runs regularly to this point. Above Pollocksville the river becomes obstructed by occasional sand bars, and numerous snags, fallen and overhanging trees and roots, and there is but little navigation.

A steamer occasionally runs as high as Quaker Bridge, a point 9 miles above Pollocksville; but above the bridge navigation is confined to flat-boats and rafts. Before the river became so badly obstructed steamers made regular trips as far as Trenton. As the commerce to be benefited by an improvement of this river is mainly prospective, Mr. Wolbrect has been unable to give statements as to the exact amount of produce which will probably be diverted from its present channels and seek the river as its natural and cheapest outlet; but he gives a description of the well cultivated and productive section of country through which the river flows, states the great distance that farmers are compelled to haul their produce, and gives an idea of the great saving in freights which would be effected should the obstructions to navigation be removed.

It is proposed to do but little work below Pollocksville except to cut off the bend about 4 miles below the town. From Pollocksville to Trenton it is proposed to secure a channel 3 feet in depth at an extreme low summer stage of water by clearing the channel of all obstructions mentioned above. Through the same shoals dredging will be required. The estimate provides for a width of 50 feet at those points. It is also proposed to build about 400 linear feet of solid dike to divert the water from portions of the old river-bed into the cut-offs, and also to build about 600 linear feet of wattle-dam, to protect the banks of the river at certain points.

The accompanying map shows the positions of the shoals where dredging is recommended, as well as the locations of the proposed cut-off and the protecting dikes and dams.

Mr. Wolbrect's estimate for all the proposed work amounts to a trifle over \$22,000.

It appears to me that the extent of the interests involved fully warrants the expenditure of this amount by the general government, in order to open up this river to unobstructed navigation.

The Trent River is in the collection-district of New Berne.

I am, general, very respectfully, your obedient servant,
CHAS. B. PHILLIPS,
Captain of Engineers.

Brig. Gen. A. A. HUMPHREYS,
Chief of Engineers, U. S. A.

REPORT OF MR. J. M. WOOLBRECT, ASSISTANT ENGINEER.

UNITED STATES ENGINEER OFFICE,
Norfolk, Va., January 25, 1879.

CAPTAIN: In pursuance of your instructions, I have the honor to report on the examination of the Trent River, N. C., made under your direction during the month of December, 1878.

This examination was ordered for the purpose of determining the character and extent of the obstructions existing in the river and the practicability and cost of removing the same sufficient for the purpose of navigation. There was no upper limit assigned to the examination, but it was intended to embrace as much of the river above its mouth as might appear worthy of improvement. On reaching New Berne, which is situated at the confluence of the Trent and Neuse Rivers, I learned from some of the citizens familiar with the stream that though the river was susceptible of improvement for navigation as far as Tuckahoe Creek, the present needs of the country would be amply satisfied by securing the improvement as far up as Trenton, and when I reached Trenton and found that the river there was only about 90 feet wide, narrowing rapidly to 70 and 60 feet above, with its channel completely obstructed, I concluded that I would not be justified in devoting any of the limited time and means at my disposal in extending the examination higher up. The bridge at the place was, therefore, selected as the initial point, and the examination commenced December 16.

Trent River has its origin at the junction of Beaverdam and Tuckahoe Creeks in Jones County. Its general course is eastwardly through the middle of Jones County and through part of Craven County to New Berne, where it empties into the Neuse, of which river it is the principal tributary. From Trenton to some little distance below Pollocksville its course is tortuous. The bends are acute, and in some places the necks have been cut through, while at others the occasional high waters have washed deep trenches, which in time may become the channel of the river. The width varies from 90 to 150 feet. Below Pollocksville the river is more direct in its course, gets considerably wider as it approaches its mouth, has a less rapid current, and is free from obstructions. The banks proper are of good height, but at many places there are secondary banks which are low and swampy. For 8 or 10 miles above the mouth "pocosons" or grass marshes of considerable extent stretch out on either side. The swamp and low banks are heavily timbered with cypress, oak, pine, &c.

The water at Trenton at the time of the examination was about 5 feet above extreme low water; elsewhere its exact stage could not be determined, but at Pollocksville it was approximately $3\frac{1}{2}$ feet above extreme low water. The water in the channel, as can be seen by referring to the accompanying map, was generally of good depth. A number of places above Pollocksville will require dredging to secure a 3-foot depth during extreme low water.

About 5 miles above New Berne the channel has quick, sharp turns for the distance of about a mile, owing to the projection of bars from opposite points of the river. The obstructions are found principally above Quaker Bridge, and consist of leaning trees, fallen trees, snags and roots, trees growing in channel, brush and drift on banks, and sandy shoals.

I would suggest that the shoal places in the upper river be dredged, and that the bends be cut off, where indicated on the map. I do not think it probable that channels dredged across the bars at the sharp turns in the river could be made of a permanent