

MAINE STATE LEGISLATURE

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DOCUMENTS

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THE LEGISLATURE

OF THE

STATE OF MAINE,

DURING ITS SESSIONS

A. D. 1851--2.

Augusta:

WILLIAM T. JOHNSON, PRINTER TO THE STATE.

1852.

THIRTY-FIRST LEGISLATURE.

No. 10.]

[HOUSE.

MEMORIAL

Of Mark Trafton and 50 others, praying for aid in the construction of a Canal and Locks around the Aroostook Falls.

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*To the honorable Senate and House of Representatives of the State of Maine, in Legislature assembled, A. D. 1852.*

The Memorial of Mark Trafton and others, humbly sheweth :

That the agricultural, lumbering, and other industrial pursuits, of the Aroostook valley individually, and of the State generally, would receive immense benefit and encouragement, by the construction of a canal with locks, around the falls of the Aroostook river, about two miles from its intersection with the river St. John :

That they are unable to undertake and finish such an enterprise without aid from the State ; and that the peculiar situation of these falls, being just within the borders of the Province of New Brunswick, render it more necessary for us to receive such aid from our own government.

The natural position of this part of the State, in regard to the course of its streams, in accordance with the natural conformation of the land, make it unavoidably necessary, that our lumber, agricultural products, and heavy manufactured articles, such as clapboards, shingles, &c. &c., should float down the river and into the

Province waters, on their way to Portland, Boston, and other markets.

Within our own borders there is no difficulty, and only the obstruction offered by these falls, in the whole course of the river. There is probably no river in New England that affords such a length of uninterrupted carriage of lumber, as does the Aroostook above these falls. For more than one hundred miles, at certain seasons of the year, steamboats of the smaller class could freely navigate up and down its waters ; but almost at its very junction with the St. John, and just within the limits of the Province of New Brunswick, this formidable obstruction, (and the only one, too, between the sources of the Aroostook and the Atlantic ocean,) occurs, seemingly to mar the rare facilities which otherwise exist for affording an outlet to this comparatively remote section of the State to all the markets of the world.

The Province people and government are indifferent to the construction of any improvement in these falls. They own no land above them, and of course have no products of any kind to pass over them. They could get nothing up if they wished to ; as the use of their waters, to us, only affords a medium of transit for our products to American bottoms, they derive but a very small and indirect benefit from their intercourse with us in this respect ; hence it could not be expected of them to manifest any particular desire or energy in the construction of improvements of the Aroostook, that would benefit the citizens of Maine alone, or themselves almost none at all. Notwithstanding this, however, they have granted a very liberal charter to citizens of this State, authorizing them to erect and maintain a canal and other improvements at said falls.

The benefits that will enure to the people of Maine by the improvements contemplated at said falls, would be as follows :

1st.—A saving of great loss, in damage and expense, in running over tun or hewed timber.

It is well known that the timber for the St. John market is hewn or prepared as tun timber. In passing over these falls a very large

amount is materially damaged—some of it broken and ruined, and all of it more or less battered and broomed up at the ends, so that it becomes necessary to have it again hewn and dressed, before it is fit for sale. We therefore suffer, not only a loss by the diminution in measure of timber from what it was in the woods, but in the additional expense of re-dressing, which cannot be less than five per cent. Twenty thousand tons of timber are annually run over these falls, and the saving on this alone, to the citizens of this State, would not be less than \$6,000 per annum, by the improvements contemplated.

2d.—The manufacture of short lumber, such as clapboards, shingles, &c., is increasing among us; these cannot, of course, be run over the falls, but must all be taken out of the water and carted by. The expense arising from the transportation, injury and delay, is not less than three dollars on every thousand of clapboards, and on the other varieties of short lumber in the same proportion. There are at least, 2,000,000 clapboards manufactured on the Aroostook and its tributaries per annum, and here the annual saving of another sum of \$6,000 would accrue to the people of Aroostook by the construction of a canal.

3d.—Another benefit would be the facility of sending boards to market, which cannot now be done. This business was commenced but was necessarily abandoned. They cannot be run over the falls, and the truckage past was found to be so expensive as to destroy all profit on the article and bring the operator in debt.

4th.—The same prohibition exists also, in regard to ship timber, such as juniper knees, &c. In order to get this to market it is necessary to use floaters. To bring this timber to the falls, take it out, cart by, and reload on floaters, would, as in the case of boards, be a losing operation. Hence, what might be an advantageous business to the people of the Aroostook, is wholly forbidden for want of the improvement named. There is, probably, no section of the United States where this species of lumber could be obtained in larger quantities or of better quality, than on the Aroostook. Farmers, as they are clearing land, and in leisure times of the year,

could make quite a business of saving and preparing juniper knees, the sale of which would be of essential benefit to them, were they not thus wholly shut out from every kind of market.

5th.—The sale of all kinds of hard wood lumber is wholly prohibited for lack of the improvements needed.

There is a steady and sure market for hard wood lumber of every variety at St. John. This species of lumber must also be got down with floaters; but this operation, as in the case of juniper knees, would result in great loss to the operator. Hence, although the shores of the Aroostook and its tributaries, and indeed the whole country, is covered with countless millions of all the varieties of hardwood trees, usually found in Maine, not a stick can be sent to market from our waters. Could this be done, our farmers and new settlers could very profitably employ themselves during the winter season, and thereby put into action an almost exhaustless resource, now utterly useless to them, and to the State.

6th.—Another benefit, and one of great importance, not only to the lumbermen, but to the citizens of the valley of Aroostook generally, would be the saving in the expense arising on account of this obstruction in the transportation of supplies and merchandize to be used in this section of the State.

Your memorialists have no definite statistics by which they can demonstrate the saving which would accrue, could the desired facilities be afforded. A few moments consideration, however, will convince any person that the extra expense on such articles to the consumer, is in the aggregate, enormous. Besides this, it not unfrequently happens, that gangs of hands are obliged to break off operations, or pay exorbitant prices, in consequence of the delay and difficulty in getting supplies along in due time for their support and relief.

It will not be necessary further to enumerate instances of the great benefits which the construction of a canal and locks around these falls would confer on the community in the valley of the Aroostook. They will be sufficiently obvious to every one who will bestow a moment's thought upon the facts. But, as before

stated, we have not sufficient capital to make these improvements.

Struggling, as we are, with all the trials and privations incident to new settlements, we must rely on the aid of the State in an improvement of this magnitude and importance.

Nor will the State be the least of the gainers should this enterprise be accomplished. Possessing, as it does, so many thousand acres of wild land, which would at once rise in value the moment it should come into operation, your honors cannot but at once perceive, that the aid asked for will, if granted, make the State the greatest gainer of all.

The worth of a township or two of land appropriated to promote this undertaking, would at once be liberally refunded in the rapid sale and settlement of the remainder, an object of the highest importance to the community.

Persuaded that we ask for nothing but what will prove of great general good, and grateful for the fostering care of the State thus far, in encouraging and promoting the settlement of this portion of the public domain, we respectfully repeat our request for a further continuance of your care and kindness in the way and manner above mentioned.

JOHN McCLUSKY,  
 E. P. WHITNEY,  
 JABE EVERETT,  
 JOHN EVERETT,  
 GEORGE REDIKER,  
 MATHEW C. BOLSTER,  
 SIMON GIBERSON,  
 SAMUEL DAVENPORT,  
 MARK TRAFTON,  
 B. CUMMINGS,  
 C. H. ELLIS,  
 H. A. HAYNES,  
 G. HAYNES,

JONAS FLY,  
 JOHN McFARBIN,  
 JOSEPH NELSON,  
 LEVI HOYT,  
 WILLIAM JOHNSTON,  
 EDWARD JOHNSTON,  
 LEONARD SPOONER,  
 P. FIELDS,  
 OTIS EASTMAN,  
 B. D. EASTMAN,  
 E. C. KNIGHT,  
 OTIS BRETT,  
 JOSEPH EVERETT,

JAMES BISHOP,  
AMOS BISHOP,  
ALFRED BISHOP,  
FREDERICK BISHOP,  
JAMES MURPHY,  
EDWARD MURPHY,  
SAM'L FITZHERBERT,  
JOHN PETERSON,  
E. WATSON,  
WILLIAM BISHOP,  
BINNELL GUIGEY,  
THOMAS BEAULIER,

JAMES GUIGEY,  
P. FINLAND,  
DANIEL McLAUGHLIN,  
JOHN B. TRAFTON,  
GEORGE A. NOURSE,  
WILLIAM B. TRAFTON,  
MARTIN MURRAY,  
THOMAS BOULYER, Jr.,  
P. BURNS,  
WILLIAM WESTON.  
DAVID WESTON.



# REPORT

*Of William G. Bent's Survey and Estimates for the construction of a Canal and Locks around the Aroostook Falls.*

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ORONO, NOVEMBER 10, 1851.

GEN. MARK TRAFTON :

*Sir* :—Agreeable to your request, I went to the Aroostook river on the 12th of September last, and made an examination and survey of the falls on said river, below the boundary line, with a view of constructing a canal and locks by or around the falls, for the purpose of enabling lumber to pass down with safety and without delay on its way to market, and also to furnish an easy and practicable passage for the large amount of supplies which are necessarily hauled up the river. I was first requested to make an examination of the ravine, between the high hills on the south side of the river, commencing about twenty rods above the head of Graball Island at a point where a wooden rail track had formerly been constructed, and following said track in a southeasterly direction around to the basin at the foot of the falls.

I commenced a level from the water in the river, and found the ground gradually ascended until I reached a summit of fifty-two feet, at a distance of four thousand one hundred and seventeen feet from the point of starting ; then to descend very rapidly for two thousand four hundred and fifty-one feet to the basin below the falls. The descent was one hundred and twenty-seven feet to the water. Making the whole length of line, six thousand five hundred and fifty-eight feet, with a fall of seventy-five feet, and a summit of

fifty-two feet. There are two small streams which take their rise near the summit, and empty the one, near the point of starting, and the other into the basin below the falls, which to a casual observer may make the route look feasible. But when we consider the height and length of the summit, the height of the hills on each side, with the width of the valley, which is only an average of one hundred feet, we must at once consider this location wholly impracticable. I then made a survey of the river by the falls, and an examination of the lands adjacent. The river, although very low, and as I was informed by the settlers, as low as they ever knew it, I found to contain an abundant supply of water to operate a set of locks night and day if need be.

For several miles above the falls, the banks of the river are sufficiently elevated to admit of a dam on the falls, high enough to flow out the rips which show themselves at this stage of the water on the gravel bars, without doing any damage by way of flowage.

The falls may properly be said to commence at the head of Grabball Island, an abrupt ledge of rocks five hundred and fifty feet in length, by about one hundred and fifty feet in width, and rising about ten feet above high water.

The river is here divided, and flows over a continuous ledge of slate and lime rock for a distance of one mile, falling in that distance seventy-five feet, and emptying into a basin of about eight hundred feet in diameter, of such peculiar formation, as to make a violent whirlpool at high water.

On the north side of the river, the bank is very elevated by the falls, rising to the height of some two hundred feet. On the south side, from the boundary line to the head of the falls, the river is bounded by level table land, elevated from five to twenty feet above high water. Near the head of the falls, there is a high bluff which rises from fifty to one hundred feet, and keeps the river bank some ten to twelve rods, when it recedes from the river. The bank is then very nearly level for a distance of three-fourths of a mile, and elevated from two to ten feet above high water. The river which has an average width of five hundred and fifty feet above the falls,

is rapidly contracted after passing about fifteen hundred feet into the falls.

The channel on the north side of Graball Island, is from one hundred to one hundred and fifty feet wide, and some deeper than that on the south side, so that most of the water, when as low as at present, runs that way and falls more rapidly in passing the Island. On the south side of the Island, the channel is about two hundred and fifty feet wide, where the water passes over a very abrupt rocky bed for a distance of fifteen hundred feet, when it unites with the north channel, falling in its passage fifteen feet, or one foot in one hundred. Then the channel continues deepening and contracting in width for upwards of one half mile in a northeasterly course, where it is confined to a narrow channel one hundred and fifty feet wide at top and ten to twenty at the bottom, and fifty to sixty feet deep. The river here curves to the east, and precipitates itself over steep and broken ledges to the basin before described.

On the south side of the river, below the bluff at the head of the falls, is a strip of level land around which the river curves, which is from five to six hundred feet wide in the middle, and running to the head of the basin, where it is about two hundred feet wide and but little elevated above high water, which presents a very favorable location for a canal and other improvements which may be required here. Near the head of this strip of land, a small rivulet which has its rise from springs, runs in a parallel direction with the river until it unites just above the foot of the falls. This ravine will also add to the advantages of this location, and render it one which may be improved with entire security.

The plan, which I would recommend from the survey and examination I then made, and upon which I have since made a plan, profile and estimates, for a canal, with locks, dams and piers, to operate the same, is herewith submitted.

It is to build a dam commencing at a high point of ledge on the south bank of the river, about eighteen hundred feet below the head of the falls, diagonally up the river two hundred feet; thence directly across the channel of the river two hundred feet to the high

ledge bluff on the north side, of sufficient height to raise the water on the head of the falls three feet. Then to open a canal, one foot below the present water level at the head of the falls, from above the dam on the south bank, across the strip of land before described, in a southeasterly course to the ravine, fifteen hundred feet, which will require a cut, the average depth of which will be, for the first four hundred feet, six feet, for the next eleven hundred feet, three feet. Then to follow down the ravine four hundred and fifty feet, where the ravine is three hundred feet wide, and of an average depth of eight feet below the water level above the falls. From this place, the stream turns to the east, and falls off very rapidly into the falls. I here propose a set of guard gates with piers to protect the locks below; and a dam across the ravine to the high ridge on the river bank.

The dam to be built two feet higher than the dam across the river on the falls, which will give additional waste-way for water to escape in high freshets. From below the guard gates, for one hundred feet, an embankment will be required of an average height of eight feet, to make one side of the canal. Here we encounter a heavy ledge cut, for a distance of three hundred and fifty feet, to the basin below the falls. The top of the bluff is six and one half feet above the water level at the head of the falls. From this point, I propose a set of seven locks, to overcome the fall to the basin, which is seventy-five feet, to which must be added three feet for the draught of the lower lock, three feet for the rise by the dam, also seven feet for the rise of water on the dam, which makes a total fall of eighty-eight feet; the first of sixteen feet lift, as it will be worked but little at high water, and six of twelve feet lift each, and three feet draught. Three and one half of the fourth lock, will come into the ledge cut, and the timbers may be bolted to the ledge on the sides; the others, with the exception of the lower one, may be secured from spreading, by running the posts up with beams across them, at much less expense than to build piers. The lower one will require a pier on each side, fifteen feet wide at bottom, six at top, one hundred feet long, and fifteen feet high, to protect and

support it, as when the water is high it will be overflowed. A small amount of excavation may be required in sinking the timbers for this lock, but I think it may be placed so near the centre of the basin, as to find sufficient depth of water. The other locks, which come into the basin, will require some filling up to make their foundations, but it will be done at a trifling expense from the large rock cutting just above.

There will also be required a breakwater, at the foot of the falls, of sufficient magnitude to change the current of the river which now sets into the basin very strong at high water, and give it a direction from the basin.

Another plan, and one which may be thought advisable, as it will be attended with much less expense at first, would be to extend the level down one hundred and fifty feet into the bluff, before commencing the locks, and then to put two of the locks into the ledge, and to build up piers for the three next in the basin. From the fifth lock, extend a level down across the basin, and over the ledge point below the basin one thousand feet, supported on piers and tressel work to a small eddy, where with two locks, there is a very favorable place to go out into the current with rafts, or come into the locks with boats.

Piers would be required to protect the lower lock, and a small amount of excavation for the bottom of the same. The first expense of building, would be some ten thousand dollars less on this plan; but when we take into account the large amount of pier work, which if built of wood, must necessarily be rebuilt every four years, I am inclined to think it may be advisable to make the structure more permanent at first.

I have, therefore, in my estimates, adopted the plan of making the deep cut in the ledge, and building the locks all together, one hundred feet long and twenty feet wide.

Where the dam crosses the channel of the river on the falls, there will be required a foundation fifty feet long, sixty feet wide, of an average height of eight feet, which I estimate at five hundred and forty-seven dollars, to be built of sided hardwood or hemlock

timber, bolted together and bolted to the ledge with iron bolts, with stringers and ties eight feet apart and filled with rock ; the upper face to be covered with plank four inches thick ; the lower half of the foundation, which will serve as an apron to pass off whatever may run over the dam, will be much exposed to wear, and should be covered with sided hardwood equal to one foot thick, and securely bolted.

The dam will be of an average height of twelve feet. That part of it which crosses the channel should be made some lower than the other portion, so as to allow the logs and timber driven down the river to keep in the channel. The length of the dam I have calculated at four hundred feet. It may be thought advisable to extend the wing dam further up the stream so as to give a greater length of waste way ; but I am of the opinion that this will be all that is required. It should be thirty feet wide on the bottom and ten feet at the top, built of hemlock logs with stringers and ties eight feet apart, secured to the ledge with iron bolts and filled with rock, the upper face to be covered with three inch plank and the top with hard wood equal to six inches thick, which I estimate at five thousand six hundred dollars. The canal, for the first four hundred feet from the bank of the river, will require a cut of an average depth of six feet and sixty feet wide, in order that rafts may enter with safety at high water, which will require five thousand three hundred and twenty yards of excavation, three-fourths of which, from the appearance of the ledge on the bank, and the continual out-croppings along the whole distance will be a ledge cut, and one-fourth gravel. The gravel and the rock will be wanted for the dam and the piers above the same.

I estimate the whole cut, at one dollar and fifty cents per yard, seven thousand nine hundred and eighty-six dollars, which will cover the expense of graveling the dam and excavating the rock.

The next section, of eleven hundred feet, will average three feet deep, making the amount of excavation seven thousand three hundred and twenty yards, which I estimate at one dollar per yard, seven thousand three hundred and twenty dollars. As it follows

the ravine the ledge will be mostly a side cut and a greater proportion of gravel. In the next section of four hundred and fifty-feet, the ravine is sufficiently deep and will only require some straightening on the side, which I estimate at two hundred dollars. Here the ravine is three hundred feet wide. On the south side, I propose a set of guard-gates twenty-five feet wide, with an abutment on the south side, built on to the steep bank, thirty feet long, five feet wide at bottom, twenty-five at top, and fifteen feet high. On the other side, a pier fifty feet square, of an average height of ten feet, as it will come on to a rocky ridge which runs lengthwise of the ravine, built of sided hemlock timber, planked on the upper face and the side next to the canal, with three inch plank. From the outer side of the pier across to the ridge on the river bank, a distance of two hundred feet, there should be a rolling dam of twenty feet base, thirteen feet high, built of hemlock logs and filled with rock, the top side covered with three inch plank.

Next below the pier, for one hundred feet, is a rocky ridge, which, with an embankment twenty feet wide and eight feet high, will make the canal for that distance. The guard gates, with abutment and pier, I estimate at thirteen hundred dollars. The dam and embankment at two thousand three hundred and fifty dollars. Here I propose a set of locks to the basin. The amount of excavation through the bluff before described will be twenty-two thousand yards of rock cutting, which I estimate at one dollar and fifty cents per yard, thirty-three thousand dollars. The locks, with gates and hangings for same, I estimate at one thousand dollars each, making seven thousand dollars.

The piers to protect the lower lock I estimate at five hundred and ten dollars. The estimate for the rock cutting for the locks is sufficient to cover the expense of the foundation for all of the locks.

The breakwater at the foot of the falls should be two hundred and fifty feet long, thirty feet wide at the base and fifteen feet at top. The average height to be twelve feet, the upper end built on to the bluff below the falls, and built up to high water mark, the outer or lower end to be built up to the ordinary water level, of

sided hard wood or hemlock timber bolted to the ledge and filled with rock, which I estimate at twelve hundred and twenty-five dollars.

To which may be added, for clearing river below the falls to the St. John river, one thousand dollars ; clearing twenty-five acres wild land by the falls, five hundred dollars ; clearing channel above the dam and building piers and boom to protect rafts, one thousand dollars ; for contingencies five thousand dollars.

Making an aggregate of seventy-four thousand, five hundred and thirty-eight dollars.

With much respect,

Your obedient servant,

W. M. G. BENT.



## ESTIMATES.

|                                                   |                 |
|---------------------------------------------------|-----------------|
| Foundation for dam, . . . . .                     | \$547           |
| Dam across the falls, . . . . .                   | 5,600           |
| First section of canal, . . . . .                 | 7,986           |
| Second section of canal, . . . . .                | 7,320           |
| Third section of canal, . . . . .                 | 200             |
| Guard gates, abutment and pier, . . . . .         | 1,300           |
| Dam across ravine, and embankment, . . . . .      | 2,350           |
| Cut through the bluff, . . . . .                  | 33,000          |
| Seven locks, \$ 1,000 each, . . . . .             | 7,000           |
| Piers for lower lock, . . . . .                   | 510             |
| Breakwater, . . . . .                             | 1,225           |
| Clearing river below falls, . . . . .             | 1,000           |
| Clearing 25 acres wild land, . . . . .            | 500             |
| Clearing channel, and piers, above dam, . . . . . | 1,000           |
| Contingencies, . . . . .                          | 5,000           |
| Total, . . . . .                                  | <u>\$74,538</u> |

# STATE OF MAINE.

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HOUSE OF REPRESENTATIVES, Jan. 31, 1852.

ORDERED, That 500 copies of the foregoing memorial and accompanying documents, be printed for the use of the Legislature.

EDMUND W. FLAGG, *Clerk.*