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REPORT ON PROPOSED WATER DISTRICT

MCKOWNVILLE - TOWN OF GUILDERLAND

ALBANY COUNTY, NEW YORK

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April [illegible], 1945.

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BENJAMIN L. SMITH & ASSOCIATES

~Engineers~

ALBANY, NEW YORK

PROPOSED WATER DISTRICT - MCKOWNVILLE

TOWN OF GUILDERLAND, ALBANY COUNTY, NEW YORK

Copied - April 12, 1948.

The Sewer and Water Committee,
McKownville Improvement Association,
McKownville, New York.

Gentlemen:

Consideration is being given to the creation of a Water District in McKownville for the purpose of furnishing suitable drinking water and adequate fire protection for the residents of that community. The proposed District lies immediately west of the City of Albany north and south of Western Avenue and would embrace the same area as included in the present McKownville Fire District. It is bounded on the north and east by the corporation line of the City of Albany. The southern boundary would follow the Betty line from the Krum Kill westerly to a point approximately 550 feet west of McKown Road and would then follow the Witbeck line southerly for a distance of 800 feet and thence westerly to Schoolhouse Road. The western boundary would run northerly from this point to Western Avenue and thence roughly parallel to Fuller Road to intersect the Albany City line.

There are approximately 255 buildings within this District and the present population is estimated to be from 1,000 to 1,200 persons. The proposed Water District should increase in population to approximately 2,000 in twenty years and 3,000 in forty years.

HISTORY OF THE EXISTING FACILITIES:

The two water systems which now serve this District will be referred to as "The Farley System" and "The Witbeck System." The Farley System serves a real estate development known as "Garden Park Estates," which is situated along Fuller Road from Providence Street to Johnson Street. The Witbeck System serves a real estate development known as "Country Club Highlands," lying along Western Avenue from Waverly Place to Fuller Road and also that section along the north and south sides of Western Avenue from Waverly Place to the Albany City line.

The water supply for the Farley System originated some years ago as a service the development owner provided for those who purchased his lots and built residences thereon. The water supply is obtained from sixteen well points, located within the development and the three pumping units have a combined capacity of 2,250 gallons per hour or approximately 38 gallons per minute. These pumps deliver water into four pressure tanks with an aggregate storage of 9,600 gallons, only part of which is usable. The water mains of the Farley System are of 2-inch pipe and the water pressure varies from 40 to 42 pounds. This information on the Farley System was obtained from Mr. Booth of the office of W. W. Farley.

The Witbeck System originally began water service in 1910 or 1911. The supply works consist of a reservoir of about 2-1/2 acres in surface area, a concrete dam and a small combined pump and chlorinating structure at the toe of the dam. A motor driven centrifugal pump with chlorinating machine delivers the water into a concrete tank at the highest elevation in the development near the corner of Western Avenue and Schoolhouse Road. We understand that the capacity of the concrete tank is 12,000 gallons. The water mains in this system are principally 2-1/2 inches and 4-inches in size, together with a 6-inch main on the south side of Western Avenue extending from Parkwood Street to Brookwood Avenue. The 4-inch mains are in Western Avenue from Schoolhouse Road to Waverly Place and in the alley west of Elmwood Street. There is another 4-inch main in the alley between Elmwood Street and Parkwood Street, while the balance of the water mains in alleys and streets are of 2-1/2 inches steel pipe. Information as to the Witbeck System has been obtained from a valuation of the McKownville Water System, filed by the owners with the Public Service Commission on June 27, 1940.

Both these systems are unsatisfactory, due to insufficient pressure, obsolete mains and, at times, poor quality of water. Neither of these systems are of such size or value as to be subject to Public Service Commission regulation; the only provision or control to protect the consumers is that exercised by the State Health Department with respect to chlorination.

RECENT ACTION TO OBTAIN AN IMPROVED WATER SUPPLY:

During 1943 and 1944, your Association began taking constructive action toward improving the McKownville water supply. Meetings were held, plans discussed, conferences arranged with State and local Municipal Bodies and, in 1944, our organization was asked to assemble some data which would be presented to the residents. It was felt that engineering and construction costsinformation would enable the taxpayers to judge if a feasible plan could be worked out whereby a Water District would be formed and the present system or a new source of water supply and more modern distribution be placed in operation.

REQUIREMENTS FOR FIRE PROTECTION:

The New York Fire Insurance Rating Organization establishes the fire flow requirements of a water distribution system in order to provide a protected fire insurance rate. We have contacted this Organization and have learned that it is necessary to make provision for an elevated storage of 200,000 gallons which is far in excess of the present storage in the Farley and Witbeck Systems. The water mains should be of such size as to furnish 500 gallons per minute of fire flow at any point in the system with a residual pressure of 20 pounds, where a pumping engine of 500 gallons per minute is available. Unless this pumping engine is provided, a flow of 500 gallons per minute with 40 pounds residual is required. We understand that the auxiliary fire apparatus owned by the McKownville Fire District includes such a 500 G.P.M. pumping engine. The requirements of the Fire Insurance Rating Organization also specify that the spacing of the fire hydrants shall not exceed 500 feet; that the fire hydrants shall be located on mains at least 6-inches in diameter and that each hydrant contain two 2-1/2 inch hose outlet and one large suction outlet with a gate valve on the lateral to each hydrant. All water mains within the Farley water system are less than 6-inches in size and the only 6-inch main in the Witbeck water system is on Western Avenue from Parkwood Street to Brookwood Avenue. Therefore, the smaller size mains of these two systems can only be utilized for domestic water service and, it is necessary to install new mains of 6-inch size and larger at all locations where fire hydrants are required.

THE PROPOSED WATER SYSTEM:

We have investigated a water system for the proposed District and have given consideration to four alternate supplies of water as follows:

(1) The purchase of water from the Latham Water District.
(2) The installation of drilled wells.
(3) The purchase of water from the City of Albany.
(4) Continued use of the Witbeck Reservoir.

In order to obtain water from the Latham Water District, it would be necessary to install an 8-inch main in Fuller Road for a distance of approximately 4,300 feet. This would extend from the Albany City line to connect with the Lathams System at Railroad Avenue north of the New York Central Railroad tracks. The pressure in the Lathams System is such that it would not be necessary to install a pumping station, although an elevated tank of 200,000 gallons capacity would be required as a reserve for fire protection. We understand the McKownville Improvement Association has received a letter from the Supervisor of the Town of Colonie, in which it is stated that the Lathams District, under present conditions, is not in a position to supply water to the proposed McKownville Water District.

WATER SUPPLY FROM DRILLED WELLS:

We have made a preliminary design with estimates of cost on a proposed water system which would include two large diameter, gravel-packed deep wells with electric driven pumping units, each well to supply 200 gallons per minute. It is believed that exploratory test borings may discover suitable water bearing formations in the vicinity of Fuller Road and Western Avenue or in the northern section of the proposed District near the Albany corporation line. Water would be pumped from the wells directly into the distribution system without treatment, except the application of chlorine. An elevated steel tank of 200,000 capacity would be located at a suitable elevation and hydrants would be provided on all streets to comply with the regulations of the Fire Underwriters. A majority of the water mains would be 6-inches in size, while the main supply line from the wells to the tank and at other locations of heavy flow would be 8-inches. The system would be looped in order to minimize interruption of service during a break in a water main or other emergency. At such locations where it is deemed advisable, portions of the old system will be utilized to serve domestic requirements of the existing houses.

The following is an estimate of cost of the proposed water system with a supply obtained from drilled wells.

Water Mains - 12,050 Feet of 4", 6" & 8" Pipe	$ 23,300.00
Gate Valves	1,000.00
Hydrants	4,300.00
Restoration of Paving	5,000.00
Elevated Steel Tank	27,900.00
Drilled Wells, Pumps & Chlorinating Equipment	24,900.00
Sub-Total	$ 86,400.00
Engineering, Legal & Contingencies - 15%	$ 12,960.00
TOTAL COST - EXCLUDING LAND	$ 99,360.00

WATER SUPPLY FROM THE CITY OF ALBANY:

As an alternate, we have also made a preliminary design with estimates of cost on a water system for the proposed District, based on the purchase of water from the City of Albany. The distribution system of Albany extends to the corporation line on Western Avenue and includes one 8-inch main and one 6-inch main from Homestead Avenue. The normal pressure in the City mains at the City line is approximately 62 pounds and ground elevation at this point is 187. During times of fire demand within the City, the pressure in the mains may drop from 62 pounds to 44 pounds, which would result in inadequate pressure for fire protection within the proposed McKownville Water District.

With a supply of water from this source, the Fire Insurance Rating Organization would require an elevated steel storage tank of 200,000 gallons capacity which may be located on Fuller Road between Western Avenue and Providence Street. The water level in this tank would be at elevation 380 and it would be necessary to install a booster pumping station for the purpose of increasing the water pressures in the proposed District. This pumping station would be located on Western Avenue in the vicinity of Arcadia Avenue or Knowles Terrace.

The distribution mains would be similar as to size and layout, to those described for a water supply from drilled wells. The principal difference would be the substitution of an 8" main in place of a 6" main from the City line along Western Avenue to the proposed pumping station. The 6" main in the Witbeck system would be used as part of fire protection mains and the smaller mains of the two existing systems would be utilized for supplying water for domestic consumption. Under this plan, it would also be necessary to construct an underground vault and install a meter at the City line for the purpose of measuring the amount of water supplied by the City of Albany. The following is an approximate estimate of cost of a water system for the proposed McKownville District, based on the purchase of water from the City of Albany:

Water Mains - 12,290' - 4", 6", 8"	$ 25,300.00
Gate Valves -	1,000.00
Hydrants -	4,300.00
Restoring Paving over Mains	5,100.00
Metering Vault and Equipment	1,300.00
Water Pumping Station	2,800.00
Elevated Steel Storage Tank	27,900.00
Sub-Total	$ 67,700.00
Engineering, Legal & Contingencies - 15%	$ 10,155.00
TOTAL COST - EXCLUDING LAND -	$ 77,855.00

CONTINUED USE OF THE WITBECK RESERVOIR:

We have not made a detailed investigation as to the yield or dependability of this supply nor have we determined the quality of the water. If this alternative is adopted, the continued use of the reservoir would be subject to the approval of the New York State Water Power and Control Commission. We have not received from this Department an expression as to their requirements for purifying the water at this source, but from our knowledge of the usual requirements in similar cases, we would assume that it will be necessary to install a filtration plant before permission could be obtained to continue the use of the reservoir.

The drainage area at the Witbeck storage reservoir is between one and two square miles. It would likely be necessary to provide for some protection of the immediate watershed, although no steps could be taken to provide full protection over the entire area. These features require extensive investigation. We have based our costs, exclusive of land on minor changes at the reservoir and the construction of a filtration plant and pumping station at the toe of the dam. The pumping station would deliver water into an 8-inch main which would be connected to the proposed distribution system at Western Avenue near Fuller Road. The distribution system would be identical to the plan presented for a water supply from drilled wells. The following is an estimate of cost of a proposed water system, utilizing the Witbeck Reservoir:

Water Mains	$ 23,300.00
Gate Valves	1,000.00
Hydrants	4,300.00
Restoration to Paving	5,000.00
Elevated Steel Tank	27,900.00
Filtration Plant & Pumping Station	32,000.00
Connecting Main from Filter Plant	1,900.00
Sub-Total	$ 95,400.00
Engineering, Legal & Contingencies 15% -	$ 14,300.00
TOTAL COST - EXCLUDING LAND -	$ 109,700.00

ANNUAL FIXED CHARGES AND OPERATING COSTS OF THE WATER DISTRICT:

We have presented the estimated cost of three water systems which differ principally as to the source of supply. These estimates do not include the cost of acquiring the existing water systems or the purchase of additional land. In calculating the annual fixed charges, we are assuming that the sinking fund requirement would be at the rate of 3-1/3 per cent, corresponding to thirty year bonds. We are also assuming an interest rate of 2 per cent.

The operation of a drilled well supply would involve the cost of chlorinating and electricy at the pumping plant in addition to the cost of maintenance and operation of the system. The following is an estimate of the annual costs for a water system, based on a supply from drilled wells.

Sinking Fund	$ 3,312.00
Interest	1,987.00
Chlorine	25.00
Electricity	1,200.00
Maintenance and Operation	3,000.00
TOTAL ANNUAL COST -	$ 9,524.00

It has not been determined as to whether the City of Albany is in a position to furnish water to the proposed McKownville District. The rate of charge by the City would not be less than the present metered rate for large water consumers in Albany which is 24¢ per 1,000 gallons. In the event that the City of Albany would agree to furnish water, it is quite likely that there would be a service charge in addition to the meter charges. However, we have estimated the annual cost of a water system and have calculated the cost of water on the basis of a metered rate only. The approximate annual cost of this system would be as follows:

Sinking Fund	$ 2,595.00
Interest	1,557.00
Electricity at Booster Station	510.00
Cost of purchased water	10,920.00
Maintenance and Operation	2,100.00
Total Annual Cost -	$ 17,682.00

In the event Plan No. 4 is adopted, the charges would be slightly more than Plan No. 2, but much under Plan No. 3. We have estimated the annual cost to be as follows:

Sinking Fund	$ 3,657.00
Interest	2,194.00
Electricity	1,000.00
Chemicals	300.00
Maintenance and Operation	3,600.00
Total Annual Cost -	$ 10,751.00

The above estimates of annual cost do not include the fixed charges on the cost of acquiring the existing water systems or the purchase of any land.

CONCLUSIONS:

The preliminary investigations as outlined herein, indicate the feasibility of constructing a public water supply for the McKownville District at a reasonable cost. The topography of the area is such that these facilities can be extended economically, thus stimulating the future development of the area. We are informed that the present assessed valuation of the taxable properties is approximately $650,000. The proposed water system would enhance the value of individual properties and, in addition, the property owners would receive the benefit of reductions in fire insurance rates as well as a dependable supply of potable water. The estimates of initial cost and annual charges are prepared primarily for the purpose of enabling your Community to determine within reasonable accuracy, the approximate cost to individual property owners. As time and conditions change, these costs are subject to modification and, it is our belief, that they will increase rather than decrease.

The establishment of an Improvement District requires the preparation of a petition to be presented to the Town Board, which shall be signed by owners of taxable property representing at least one half of the assessed valuation of all property within the District. The petition shall state the maximum amount proposed to be expended for the improvements and is to be accompanied by maps and plans prepared by a competent engineer, showing the boundaries of the District, a general plan of the proposed system and other pertinent information with respect to water mains, fire hydrants and supply works. The plans shall meet the approval of the State Department of Health and procurement of water is subject to the approval of the State Water Power and Control Commission.

Upon presentation of the petitions, the Town Board may establish a Water District and conduct a public hearing for the purpose of determining whether the improvement is in the public interest. The expense of the improvement is borne by assessment in just proportion to the amount of benefit derived and, the financing of the improvement is subject to the approval of the State Department of Audit and Control.

The preparation of the engineering maps and data for the petitions as described, entails considerable investigation in the field and the making of surveys and maps and more detail engineering design and estimates of cost. Upon the decision of your Community to proceed with the establishment of a Water District, we would be in a position to furnish the necessary engineering services. These services would include the work required during the creation of the District and the preparation of detailed drawings and specifications for the construction work. We could also be of assistance to your Community in connection with the acquirement of the existing water systems and in the development of a plan for levying assessments for financing the program. In these matters, we would work in cooperation with your Legal Advisor.

Respectfully submitted,

BENJAMIN L. SMITH & ASSOCIATES,

BY:_____
Benjamin L. Smith

BLS:LJF

LETTER OF TRANSMITTAL

SMITH AND MAHONEY • 40 STEUBEN STREET, ALBANY, NEW YORK 12207 • (518) 463-4107
CONSULTING ENGINEERS • SURVEYORS • LAND PLANNERS

Date:	Project:
Aug. 25, 1980	
Ref:	

TO: New York State Department of Environmental Conservation

50 Wolf Road - Room 109

Albany, New York Zip Code 12233

Attention: Mr. John Esler, Engineer

GENTLEMEN:

WE ARE SENDING YOU [X] Enclosed [ ] Under Separate Cover THE FOLLOWING ITEMS:

[X] Engineering Report
[ ] Estimate
[ ] Property Description
[ ] Other:

[ ] Prints
[ ] Specifications
[ ] Change Order

[ ] Plans
[ ] Copy of Letter

No. of Copies	Title or Description
1	Report on Proposed Water District, McKownville, Town of Guilderland, Albany County, New York - April 1945.

THESE ARE:

[ ] For Approval
[ ] For your information
[ ] Other:

[X] As Requested
[ ] For review and comments

[ ] Approved
[ ] Approved as Noted

REMARKS:

Very Truly Yours,
SMITH & MAHONEY, Consulting Engineers

COPY TO:

BY: Patrick F. Mahoney Jr.
Patrick F. Mahoney