

INTRODUCTION

Purpose

The purpose of this study is to evaluate the engineering and financial feasibility of the development of a sewer company in the northeastern part of Jefferson County, Missouri.

The study is divided into two parts, namely an examination of the requirements to design a system to serve the area and then an evaluation of the economic aspects (customers, revenues, expenses, rates) to finance the proposed company.

Location

The proposed company is located in the most northeastern corner of Jefferson County, abutting the south line of St. Louis County, about 0.8 mile south of the City of Fenton. (See Plate 2.) The service area encompasses approximately 197 acres and is more specifically described as follows:

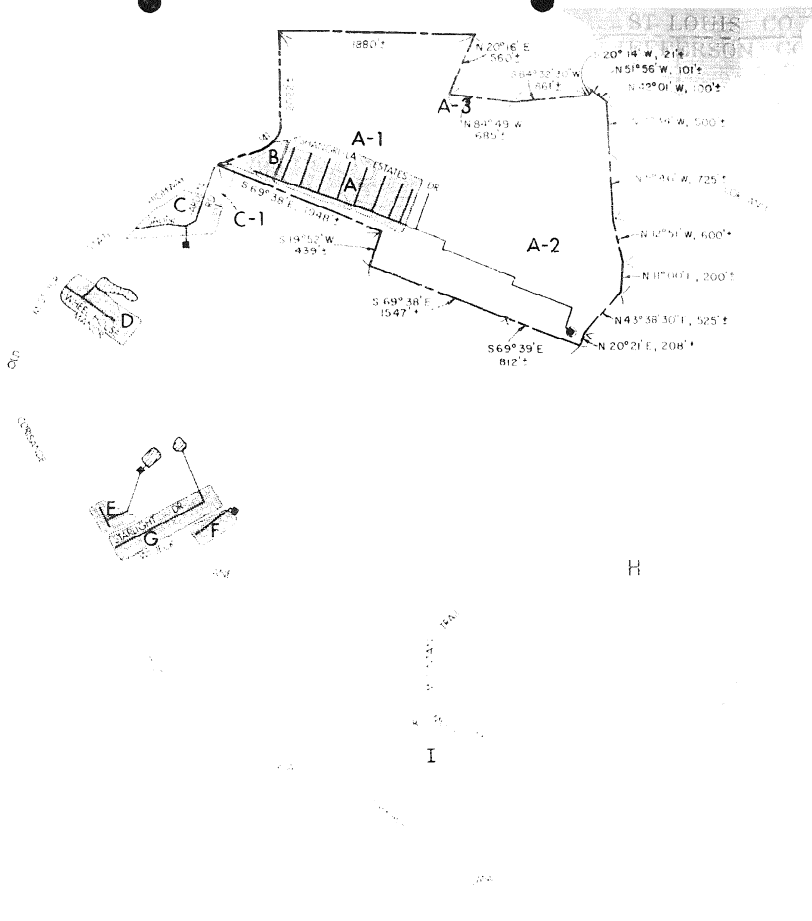
Mets and Bounds Description of the Area

An area in U.S. Surveys 2014 and 3012 in Township 43 North, Range 5 East in Jefferson County, Missouri, more particularly described as follows:

Beginning at the point of intersection of the centerline of Old Missouri State Highway 141 (also known as Brock Road) and the north line of Jefferson County (being also the south line of St. Louis County); thence southward along the centerline of said Highway 141, 2,022 feet more or less to a point on the northeastern boundary of a 20 acre tract conveyed to Floyd Shelton and wife by deed recorded in Book 155, Page 304 of the Jefferson County Records; thence south 69 degrees 38 minutes, along Shelton's northeastern line, 1,948 feet more or less to a point on Shelton's southeast line, said line being also the northwest line of Plat 2 of Shangri-La Estates, as recorded in Plat Book 49, Page 22 of the Jefferson County Records; thence S 19 degrees 52 minutes W along Shelton's southeast line, being also the northwest line of the aforesaid Plat 2 of Shangri-La Estates, 439 feet more or less to a point, said point being also the southwest corner of the aforesaid Plat 2 of Shangri-La Estates; thence S 69 degrees 38 minutes E along the southwest line of Plat 2 of Shangri-La Estates, 1,547 feet more or less to a point; thence S 69 degrees 39 minutes E continuing along the southwest line of Plat 2 of Shangri-La Estates 812 feet more or less to the southeast corner of the aforesaid Plat 2; thence N 20 degrees 21 minutes E, 208 feet more or less to a point; thence N 45 degrees 38 minutes 30 seconds E, 525 feet more or less to a point; thence N 11 degrees 00 minutes E, 200 feet more or less to a point; thence N 12 degrees 51 minutes W, 600 feet more or less to a point; thence N 5 degrees 40 minutes W, 725 feet more or less to a point; thence N 7 degrees 34 minutes W, 500 feet more or less to a point; thence N 42 degrees 01 minutes

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 Reporter dtalman

W, 100 feet more or less to a point; thence N 51 degrees 56 minutes W, 101 feet more or less to a point; thence S 20 degrees 14 minutes W, 21 feet more or less to a point; thence S 84 degrees 32 minutes 30 seconds W, 861 feet more or less to a point; thence N 84 degrees 49 minutes W, 685 feet more or less to a point; thence N 20 degrees 16 minutes E, 560 feet more or less to a point on the north line of Jefferson County (being also the south line of St. Louis County); thence westward along the aforementioned Jefferson County north line, 1,880 feet more or less to its intersection with the centerline of Old Missouri Highway 141, being also the point of beginning and containing 197 acres more or less.



MERAMEC SEWER COMPANY

EXISTING DEVELOPMENT AND PROPOSED SEWER SYSTEM

LEGEND

- SEWER DISTRICT BOUNDARY
- EXISTING WASTEWATER TREATMENT PLANTS
- ▭ EXISTING WASTEWATER TREATMENT LAGOONS
- EXISTING SANITARY SEWER LINES
- PROPOSED WASTEWATER TREATMENT PLANTS
- PROPOSED SANITARY SEWERS
- ▭ EXISTING DEVELOPMENTS WITH SEWERS
- A DEVELOPMENT AS LISTED IN TABLE 1

Table 1A

PROPOSED AREA'S DEVELOPMENT-1967, 1977, 1987*

Meramec Sewer Company

**	Name of Development	Type of Development	1967			1977			1987		
			Number of Lots or Units	Number Occupied	Estimated Population	Number of Lots or Units	Number Occupied	Estimated Population	Number of Lots or Units (b)	Number Occupied	Estimated Population
A	Shangri-La Est.-Plat 1	Mobile Home Park	(a)	-	-	151	151	453	151	151	453
A1	Shangri-La Est.-Plat 3	Single Family Subd.	(a)	-	-	66	0	0	80	80	296
A2	Shangri-La Est.-Plat 2	Mobile Home Park	(a)	-	-	326	53	159	326	326	978
A3	Shangri-La Est.-Plat 4	Single Family Subd.	(a)	-	-	0	0	0	450	400	1,480
B	Kruse Apartments	Multiple Family	(a)	-	-	60	60	180	120	120	360
TOTAL			(a)	-	-	603	264	792	1,127	1,077	3,567

*1967 - From Jefferson County Land Use Study by Harland Bartholomew and Associates

1977 - From field checks, aerial photos, maps

1987 - Estimated (Single-family 3.7 persons/dwelling unit, Apartments and mobile homes 3.0 persons/dwelling unit)

**Subdivision identification as shown on Plate 2

(a) Not in existence in 1967

(b) Existing plus reported platting

Table 2A

POPULATION DATA*

Meramec Sewer Company

<u>Year</u>	<u>Number of Lots Or Units</u>	<u>Lots or Units Occupied</u>	<u>Estimated Population</u>	<u>Ten Year Increase</u>
1967	0	0	0	-
1977	603	264	292	-
1987	1,127	1,077	3,567	450%

*Source (See Table 1):

1967 - From Jefferson County Land Use Study by
Harland Bartholomew and Associates

1977 - From field investigations, aerial photos, maps

1987 - Estimated, based on pending new development

Table 4A

ESTIMATED COST EXISTING SEWER SYSTEMS^(a)

Meramec Sewer Company

Existing Systems - Now serving Shangri-La Estates and Kruse Apartments
(See Table 1 and Plate 2.)

6,240 L.F. of 6" VCP @ \$6.00/L.F.	=	\$37,440
6,340 L.F. of 8" VCP @ \$7.00/L.F.	=	44,380
36 Manholes @ \$600 each	=	<u>21,600</u>
Sub Total		103,420
Construction Contingency (+15%)		<u>15,580</u>
Construction Cost		119,000
Technical Services ^(b)		24,000
Easements (12,580'x20')		<u>58,000</u>
TOTAL COST		\$201,000

(a) Costs include all material, labor, equipment and installation to construct the specified item.

(b) Technical Services includes surveys, legal fees, appraisals, soil borings, engineering design, and construction inspection.

Table 6A

ESTIMATED COST EXISTING WASTEWATER^(a)
TREATMENT FACILITIES

Meramec Sewer Company

Existing Plant - 1,500 P.E. "Secondary" treatment plant (extended aeration) now serving Shangri-La Estates and Kruse Apartments

Estimated Cost

Concrete Tanks - 260 cubic yards @ \$320	=	\$83,200
Site Preparation - 25,400 cubic yards @ \$3.00	=	76,200 ^(b)
Equipment - (blowers, skimmers, pumps, etc.) L.S.	=	48,000
Equipment Installation & Connection - L.S.	=	30,000
Electrical - L.S.	=	2,900
Fence - 6' chain link, 340 L.F. @ \$8.00	=	<u>2,700</u>
Sub Total		243,000
Construction Contingency (+10%)		<u>25,000</u>
Construction Cost		268,000
Technical Services ^(c)		42,000
Site - 2 acres @ \$5,000		<u>10,000</u>
TOTAL COST		\$520,000

(a) Costs include all material, labor, equipment, and installation to construct the specified item.

(b) Actual cost to excavate, blast, load, haul, spread, and compact material for site preparation.

(c) Technical Services includes surveys, legal fees, appraisals, soil borings, engineering design and construction inspection.

Unchanged 5/11/79

FINANCIAL FEASIBILITY

This section of the report analyzes the financial feasibility of the proposed company. Specifically, it examines the financial methods available, the proposed rates and charges, estimates the number of customers, and summarizes the revenues and expenses expected to occur during the first three years of operation.

Missouri Clean Water Commission Review

The "Engineering Feasibility" portion of this study (the preceding pages) was submitted to the St. Louis Regional office of the Missouri Department of Natural Resources, Clean Water Commission by letter of December 12, 1977 and August 3, 1978 for their review in meeting sanitary and engineering requirements. That office responded by letter of August 10, 1978 approving the Engineering Feasibility portion of this report. (See Appendix A.)

Financial Plans

Sources of Funds

Funds to finance the proposed company in developing the unified facilities to serve the area are available from five sources as follows:

Company Purchase of the Existing Facilities - The purchase of existing sewer systems is expected to be made by partly issuing shares of stock in the Meramec Sewer Company and partly by use of borrowed funds equivalent to the market value of the facilities. Initially, this will include the wastewater treatment plant and sewers owned by Shangri-La Estates inasmuch as this plant will become the single, centrally located treatment plant serving the service area. (See Plate 2.)

Sale of Stock - To provide additional working capital, stock will be sold in the Meramec Sewer Company.

Contributions in Aid of Construction - As future developments connect to the "Sewer Company's" system, a contribution in aid of construction will be charged to finance or construct trunk lines or wastewater treatment plant expansion to serve the developments or properties to be serviced. This fee is paid as a function of the number of residential dwelling units connected to the system or in the case of a commercial connection, as an equivalent number of dwelling units based on the volume and strength of the sewage in proportion to that of a standard single family dwelling unit.

Unchanged 5/11/79

User Charges - User charges serve to provide the Company with ongoing funds to meet the everyday expenses to maintain, operate and repair the treatment facilities and sewers. These charges are set at a level to cover all expense incurred in the operation, maintenance, and administration overhead of the Company's facilities and include a reserve for depreciation of equipment as well as a normal return on investment.

Borrowed Funds - Most private sewer companies finance construction and operation by sale of stock, contributions in aid of construction, and user service charges. However, during the initial development of the private sewer company, when cash flow is usually slow, it may be appropriate to borrow funds to construct certain facilities. An example of this could be the construction of the proposed trunk line serving developments not now connected to the activated sludge treatment facility to be used as the Sewer Company's treatment plant (see Plate 2).

Proposed Rates and Charges

The proposed rates and charges to customers in the service area of the Meramec Sewer Company are expected to encompass repayment of funds acquired by the five methods outlined in the preceding section entitled "Financial Plans." The expected dollar amounts and the rationale for their derivation is shown in the following.

Initial purchase of the existing sewer system and wastewater treatment plant of the Shangri-La Estates Park will be made by borrowing money and issuing stock to those owners who will become the major stockholders of the Meramec Sewer Company. These facilities are estimated to cost \$521,000 (see Table 4A and 6A).

Contributions in Aid of Construction

The amount of the contributions in aid of construction to be made by those connecting onto the system must be sufficient to finance and expand the system. This is estimated to total \$521,000 based on the current costs for trunk and sub-trunk sewer lines and wastewater treatment plant. This total is as follows:

Existing trunk and sub-trunk sewers (Table 4A)	\$201,000
Sewage treatment plant (Table 6A)	<u>320,000</u>
Total	\$521,000

Immediate connections to the system are expected to include those five developments listed as A through B on Table 1A, which total 455 lots or mobile home pads during the first three years of the Company's operation.

Subsequent connections in years four through 10 are expected to include growth of presently projected subdivisions and mobile home development in the Company's boundaries which will occur as a result of the availability of a central sewage collection and treatment system.

During this period, (years four through 10) subdivision and mobile home growth is projected to add 622 additional units to the system.

Total potential connections to the system are projected as follows:

First three years	455
Years four through 10	622

Total	1,077

Estimated Fee for Contributions in Aid of Construction (First Three Years)

The fee for contributions in aid of construction is determined by the costs to finance and expand the system divided by the number of units connected to that system. To calculate this fee for the initial years, the following costs were estimated:

$$\frac{\text{Development Costs}}{\text{Estimated Connectors}} = \frac{\$520,000}{455} = \$1,145/\text{connector}$$

To provide some edge against unknown rapidity of development, fluctuating interest rates, the national economic picture, and other factors that could affect growth in this area, it is suggested that a \$1,150 contribution in aid of construction be utilized.

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No return of investment is included in this fee so as to avoid conflict with Internal Revenue Service definition of income.

User Service Charges

To provide for the annual costs to operate and maintain the sewers and sewage treatment facilities, it will be necessary to levy a user service charge against all units connected to the system. While recovery of the capital outlay (the "contribution" fee) is based on a predetermined number of units, the payment for operating and maintenance expenses will be for a varying total of costs and a varying number of customers each year. This will occur due to the several existing subdivisions and mobile home parks connecting to the system at different times as well as increasing operating and maintenance costs as the volumes of sewage grow.

The number of customers is estimated to vary from 286 connections the first year to 455 by the third year. During this same period, the annual operating and maintenance costs vary from \$56,028 to \$57,531 (see Table 8A).

Due to the variables involved in the costs and number of connected units, it is suggested that the user service charge for the first three years be set at \$13.00 per dwelling unit per month. This charge represents a cost determined by totaling the estimated annual costs for the first three years divided by the total units expected to be connected to the system during this period.

Estimated Customers, Revenues and Expenses (1978, 1979, 1980)

The basis for deriving the "contribution" fees and user service charges are contingent upon estimates of the customers, revenues and expenses. These have been briefly enumerated in the preceding section. For purposes of Missouri Public Service Commission review these are set out in the following:

Estimated Customers

First Year (1979) - The existing developments noted as A, A1, A2, and B (see Table 1 and Plate 2) which are now connected to the Shangri-La Estates wastewater treatment plant; which will constitute the centrally located treatment plant for the Sewer Company, total 286 connections (see Tables 1 and 8). Due to the time considerations for sewer line approval and construction, only those now connected to the system are expected to be first year customers.

Second Year (1980) - During the second year, additional connections are expected to be made by developments (see Table 1A and Plate 2). This is estimated to produce a second year total of 363 connected lots, apartments, or mobile home pads. (See Tables 1A and 8A.)

Third Year (1981) - Only one new development (A3) is expected to connect to the system during the third year; however, total connections are expected to increase as previously connected developments A1 and A2 expand. By the end of the third year, total connections are expected to reach 455 (see Tables 1A and 8A).

Estimated Revenues

Based upon previously stated "contribution" fees and user service charge and the aforementioned estimates of customers for the first three years of operation, the following revenues have been estimated.

First Year (1979)

"Contribution" fees 286 @ \$1,150/connection	=	\$328,900
User service charge 286 x \$13/mo. x 12 mo.	=	44,616
		<u>\$373,516</u>

Second Year (1980)

"Contribution" fees 77 @ \$1,150/connection	=	\$ 88,550
User service charge 363 @ \$13/mo. x 12 mo.	=	56,628
		<u>\$145,178</u>

Third Year (1981)

"Contribution" fees 92 @ \$1,150/connection	=	\$105,800
User service charge 455 @ \$13/mo. x 12 mo.	=	70,980
		<u>\$176,780</u>

The total estimated revenues for the first three years from these two sources is \$695,474. Of this total, \$170,545 will be used to pay for annual operating and maintenance costs and \$524,929 will go toward payment of the capital development costs (see "Contributions in Aid of Construction" under the section entitled "Proposed Rates and Charges").

If all growth, expenses and revenues occur as are now estimated, this will provide a modest surplus of \$3,929 at the end of the first three years. This is only 2.3 percent over total estimated expenses.

Revised 5/11/79

Table 3A

ESTIMATED USER SERVICE CHARGE

Meramec Sewer Company

Year	Identification ^(a)	Connected Units		Annual Operation and Maintenance Costs ^(b)	User Service Charge ^(c) (d)
		Number	Accumulative Total		
1 (1979)	A, A1, A2, B	286	286	\$56,028	\$16.33
2 (1980)	A, A1, A2, B	77	363	56,986	13.08
3 (1981)	A, A1, A2, A3, B	92	455	57,531	10.54
TOTAL		455	1,104	\$107,545	\$12.87 ^(e)

Estimated average service charge for a combination of costs and connectors for the first three years is estimated as follows:

$$\frac{\text{Total Costs}}{\text{Total Connectors}} = \frac{\$170,545}{1,104 \times 12} = \$12.87/\text{connector/month}$$

(a) From Table 1

(b) Annual maintenance, electricity, reserve for depreciation, and return on investment (see Table 9)

(c) Per dwelling unit per month

(d) Annual O & M Costs \div connected units \times 12

(e) Average rate for the three-year period

Estimated Expenses

Total expenses for the first three years were estimated based on current maintenance, operation and administrative costs for the Shangri-La Estates sewage treatment plant with adjustments as the system expands and volumes of sewage increase. Expenses were estimated at \$56,028; \$56,986; and \$57,531 respectively for years 1, 2 and 3. (See Tables 8A and 9A.)

Revised 5/11/70

Table 9A

ESTIMATED ANNUAL EXPENSES
(First Three Years)

Meramec Sewer Company

<u>Item</u>	<u>First Year</u>	<u>Second Year</u>	<u>Third Year</u>
Annual maintenance (a)	\$ 11,209	\$ 15,000	\$ 17,000
Electricity (b)	3,300	4,400	5,500
Administration and Billing (c)	6,000	9,574	16,080
Depreciation - 3% rate (d)	<u>4,869</u>	<u>3,137</u>	<u>1,046</u>
"Above the line" total	\$ 25,378	\$ 32,111	\$ 39,626
Return on investment on depreciable assets (e)	\$ 16,230	\$ 10,455	\$ 3,485
Return on investment on non-depreciable assets (f)	<u>14,420</u>	<u>14,420</u>	<u>14,420</u>
ANNUAL EXPENSE	\$ 56,028	\$ 56,986	\$ 57,531

(a) Based on current annual costs

(b) Current monthly electrical costs average \$275/month

(c) First year estimated at \$500/month

(d) First year - \$162,500 (net after C.I.A.C.) x .03 = \$4,869
 Second year - \$104,550 x .03 = 3,137
 Third year - \$34,850 x .03 = 1,046

(e) First year - \$162,500 x .10 = \$16,230
 Second year - \$104,550 x .10 = 10,455
 Third year - \$34,850 x .10 = 3,485

(f) First year - \$144,200 x .10 = \$14,420
 Second year - \$144,200 x .10 = 14,420
 Third year - \$144,200 x .10 = 14,420



STATE of MISSOURI

JOHN D. NIBBOLD, Secretary of State

CORPORATION DIVISION

Certificate of Corporate Records

I, JAMES C. KIRKPATRICK, Secretary of State of the State of Missouri and Keeper of the Great Seal thereof, do hereby certify that the annexed pages contain a full, true and complete copy of _____

CERTIFICATE OF INCORPORATION

AND

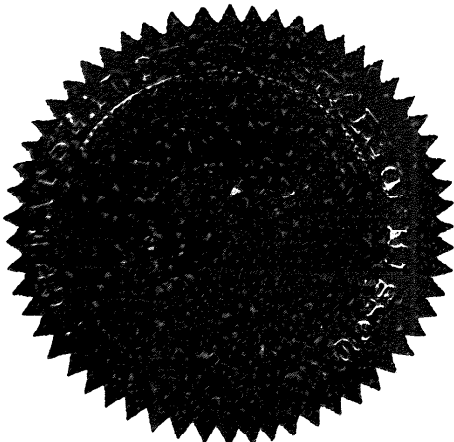
ARTICLES OF INCORPORATION

OF

MERAMEC SEWER CO.

Applicant Exhibit No. 2
Date 5/15/79 Case No. SA-77-167
Reporter Stalman

as the same appears on file and of record in this office.



In Testimony Whereof, I hereunto set my hand and affix the Great Seal of the State of Missouri. Done at the City of Jefferson, this
_____ 23rd day of March A. D.,
Nineteen Hundred and _____ Seventy-seven.

James C. Kirkpatrick

SECRETARY OF STATE



STATE of MISSOURI
JAMES C. KIRKPATRICK, Secretary of State

Corporation Division

Certificate of Incorporation

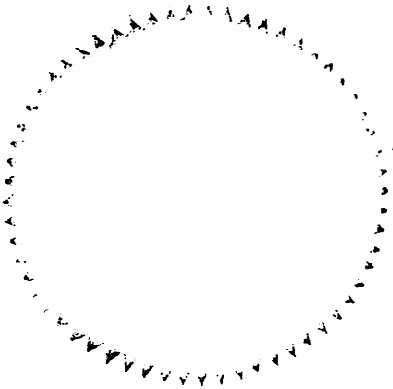
WHEREAS, duplicate originals of Articles of Incorporation of MERAMEC SEWER CO.

have been received and filed in the office of the Secretary of State, such Articles, in all respects, comply with the requirements of The General and Business Corporation Law

NOW, THEREFORE, I, JAMES C. KIRKPATRICK, Secretary of State of the State of Missouri, by virtue of the authority vested in me by law, do hereby certify and declare that MERAMEC SEWER CO.

a body corporate, duly organized this day and that it is entitled to recognition as a granted corporation organized under The General and Business Corporation Law, the address of its initial Registered Office in Missouri is 105. Shangra-La Drive, Fenton 63026.

that its period of existence is perpetual; and that the amount of its Authorized Shares is 6,000 common @ \$10.00 par.



IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the GREAT SEAL of the State of Missouri, at the City of Jefferson, this 23th day of April, 1976.

Signature of James C. Kirkpatrick, Secretary of State

RECEIVED OF: MERAMEC SEWER CO.

Sixty-eight and no/100 Dollars, \$ 68.00

For Credit of General Revenue Fund, on Account of Incorporation Tax and Fee.

Signature of Dorothy Mae Miller, Deputy Collector of Revenue

ARTICLES OF INCORPORATION

FOR

MERAMEC SEWER CO.

KNOW ALL MEN BY THESE PRESENTS, that I the undersigned, a natural person of the age of twenty-one (21) years or more for the purpose of forming a corporation under The General and Business Corporation Law of the State of Missouri, do hereby adopt the following Articles of Incorporation.

ARTICLE I

The name of the corporation is:

MERAMEC SEWER CO.

ARTICLE II

The address of the corporation's initial registered office in this State is 195 Shangra La Drive, Fenton, Jackson County, Missouri 63026 and the name of its initial registered agent at such address is WILLIAM J. KAUFMAN.

ARTICLE III

The corporation shall have authority to issue six thousand (6,000) shares of common capital stock of the par value of Ten Dollars (\$10.00) per share. The number of common capital shares to be issued before the corporation shall commence business shall be sixty (60) shares of the par value of Ten Dollars (\$10.00) each, which shall be the capital with which the corporation shall commence business. The corporation shall not commence business until consideration of the value of at least Six Hundred Dollars (\$600.00) has been received for the issuance of such shares.

ARTICLE IV

The name and place of residence of the incorporator is as follows:

William J. Kaufmann
59 Grantwood
St. Louis County, Missouri 63123

ARTICLE V

The number of directors to constitute the Board of Directors shall be three (3) at least one (1) of whom shall be a shareholder of the corporation.

ARTICLE VI

The duration of the corporation is perpetual.

ARTICLE VII

The corporation is formed for the following purpose
a. To open, build and carry on public utility business, to design, construct, operate, maintain, improve, sewer lines, sewage pumping stations, sewage treatment works and facilities, and any and all utilities and thereto.

b. To acquire, buy, sell, lease, mortgage and mortgage franchises and interests in real property, and interests in easements of every kind and description.

c. Subject to obtaining prior approval of the Public Service Commission of Missouri to have the power to acquire through eminent domain proceedings the land, property, rights, of every kind and character whatsoever necessary to construct, extend, improve, alter, maintain or operate sewer systems or facilities of the manner described in law.

d. To buy, sell, hold, purchase, discount and otherwise deal in mortgages, deeds of Trust, land contracts, negotiable instruments and other forms of evidences of indebtedness and choses in action. To borrow money and to issue debenture bonds, notes, Deeds of Trust and other evidences of indebtedness therefor and to pledge assets as collateral therefor.

e. To buy, sell, hold, pledge, transfer or be interested in, shares of capital stock of other corporations, and while the holder of any shares of capital stock in another corporation, to exercise all the rights and privileges of ownership to the same extent as a natural person might do.

f. To purchase shares of its own capital stock from time to time and to such extent and in such manner as may be authorized by the laws of the State of Missouri, and as may be determined by its Board of Directors from time to time, and to pay for the same out of its surplus earnings or accumulated profits.

g. To have any and all such and other powers in connection with its business as may be authorized to business and manufacturing companies under and by virtue of the laws of the State of Missouri, the above enumerated powers not to be in restriction thereof.

IN WITNESS WHEREOF, these Articles of Incorporation have been executed this 23 day of April, 1976.

William J. Kaufmann
WILLIAM J. KAUFMANN

STATE OF MISSOURI)
) SS.
COUNTY OF ST. LOUIS)

I, *Ann M. Hemmenway*, a Notary Public, do hereby certify that on the 23 day of April, 1976, personally appeared before me, WILLIAM J. KAUFMANN, who being by me first duly sworn, declared that he is the person who signed the foregoing document as incorporator, and that the statements therein contained are true.

Ann M. Hemmenway
Notary Public

My term expires:
ANN M. HEMMENWAY
MY COMMISSION EXPIRES DEC. 6, 1979

FILED AND CERTIFICATE OF
INCORPORATION ISSUED

APR 23 1976
James E. Carpatzick
Corporation Dept. SECRETARY OF STATE