

BEFORE THE PUBLIC SERVICE COMMISSION OF  
THE STATE OF MISSOURI

In the Matter of the Application of )  
Valley Woods Water Company, Inc., )  
for a Certificate of Convenience and )  
Necessity Authorizing it to Construct, )  
Install, Operate and Maintain a Sewer )  
System and to Supply and Render Sewer )  
Service to the Public Located in and )  
around an Unincorporated Area Near )  
Spokane, Christian County, Missouri, and )  
for a Certificate of Convenience and )  
Necessity Authorizing it to Construct, )  
Install, Operate and Maintain a Water )  
System and to Supply and Render Water )  
Service to the Public Located in and )  
around an Unincorporated Area Near )  
Spokane, Christian County, Missouri, )

Case No. WA-95-132

APPLICATION

COMES NOW Valley Woods Water Company, Inc., a Missouri Corporation, hereinafter referred to as "Applicant" and respectfully states:

1. That the applicant is a corporation duly organized and existing under the laws of the State of Missouri, and has its principal offices and place of business at Spokane, Missouri. A copy of its Certificate of Incorporation and Articles of Incorporation are hereto attached and marked Exhibit A and Exhibit B respectively, and incorporated herein.

2. Communications in regard to the applicant should be addressed to JT Edley, President, Valley Woods Water Company, Inc. 338 Goff Creek Road, Spokane, Missouri 65754, and David N. Appleby, Attorney at Law, 119 North Second Street, P.O. Box 158, Ozark, Missouri, 65721.

**FILED**

OCT 13 1994

MISSOURI  
PUBLIC SERVICE COMMISSION

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3. By this application, the Applicant seeks a Certificate of Public Convenience and Necessity to build, construct, operate and maintain a sewer system and all other facilities, including the acquisition of easements, rights of way, land, etc., necessary for the purpose of furnishing sewer services to the public in the area described in the feasibility report attached hereto marked Exhibit C.

4. By this application, the Applicant also seeks a Certificate of Public Convenience and Necessity to build, construct, operate and maintain a water system and all other facilities, including the acquisition of easements, rights of way, land, etc., necessary for the purpose of furnishing water to the public in the area described in the feasibility report attached hereto marked Exhibit D.

5. Applicant states that there are no sewer or water companies under jurisdiction of the commission being operated or rendering service within the area proposed to be served.

6. Applicant states that the areas proposed to be served are rapidly being developed into a residential and commercial subdivisions and that there are many homes and businesses being planned in the near future within said areas, all of which will need adequate sewers and water.

7. The Applicant will be borrowing funds to construct said sewer and water systems, as described in Exhibits C and D and will provide additional information relating to said loan if requested by the Commission to do so.

8. The Applicant requests a flat rate of \$20.00 per month for usage, and a \$25.00 connection inspection fee for the rendering of sewer services.

9. The Applicant requests a rate of \$7.50 for the first 1,000 gallons and \$2.00 for each additional 1,000 gallons thereafter [per month] for usage, and a \$25.00 connection inspection fee for the rendering of water service to the public in said area.

10. Applicant states that there is and will be a public need for sewer and water service within the areas proposed to be served and that public convenience and necessity will be promoted by the granting of the authority herein requested.

11. There is a no municipality located within the proposed area.

12. Following are the names and addresses of all the residents of the proposed service area:

Ron Hendrickson  
Stewart Concrete Products  
239 Elder Road  
Spokane, Missouri 65754

John Edley  
141 Valley Woods Road  
Spokane, Missouri 65754

Larry Clines  
220 Valley Woods Road  
Spokane, Missouri 65754

Tammy Duval  
118 Palmetto Drive  
Spokane, Missouri 65754

Jennifer Harter  
140 Palmetto Drive  
Spokane, Missouri 65745

Scott Campbell  
139 Palmetto Drive  
Spokane, Missouri

WHEREFORE, Applicant requests the Commission to grant it a Certificate of Convenience and Necessity authorizing it to acquire, build, construct, operate, and maintain a sewer system and all other facilities necessary for the purpose of furnishing a sewer system to the public within the area above referred to and for such further orders as the commission may deem proper.

VALLEY WOODS WATER COMPANY

By: J. J. Edley  
J. J. Edley, President

ATTEST:

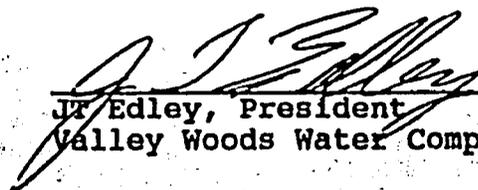
Jean Edley  
Jean Edley, Secretary

David N. Appleby  
David N. Appleby, #25590  
Attorney at Law  
119 North Second Street  
P. O. Box 158  
Ozark, MO 65721  
417-581-2411  
Attorney for Applicant

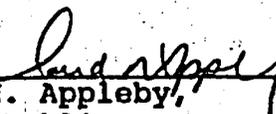
VERIFICATION

STATE OF MISSOURI    )  
                          ) ss.  
COUNTY OF CHRISTIAN )

JT Edley, President Valley Woods Water Company, Inc., being of age and duly sworn, states that he is President of said Corporation and that he has authority to make this application for Certificates of Convenience and Necessity authorizing both sewer and water services to the proposed areas, and that he has read the application and the allegations stated therein are true and correct according to his best knowledge, information and belief.

  
\_\_\_\_\_  
JT Edley, President  
Valley Woods Water Company, Inc.

SUBSCRIBED AND SWORN to before me this 3rd day of  
October, 1994.

  
\_\_\_\_\_  
David N. Appleby,  
Notary Public

My commission expires March 31, 1996.

# STATE OF MISSOURI



**FILED**  
OCT 13 1994  
MISSOURI  
PUBLIC SERVICE COMMISSION

**Judith K. Moriarty**  
SECRETARY OF STATE

**CORPORATION DIVISION**  
**CERTIFICATE OF INCORPORATION**

WHEREAS, DUPLICATE ORIGINALS OF ARTICLES OF INCORPORATION OF VALLEY WOODS WATER COMPANY, INC.

HAVE BEEN RECEIVED AND FILED IN THE OFFICE OF THE SECRETARY OF STATE, WHICH ARTICLES, IN ALL RESPECTS, COMPLY WITH THE REQUIREMENTS OF GENERAL AND BUSINESS CORPORATION LAW;

NOW, THEREFORE, I, JUDITH K. MORIARTY, SECRETARY OF STATE OF THE STATE OF MISSOURI, BY VIRTUE OF THE AUTHORITY VESTED IN ME BY LAW, DO HEREBY CERTIFY AND DECLARE THIS ENTITY A BODY CORPORATE, DULY ORGANIZED THIS DATE AND THAT IT IS ENTITLED TO ALL RIGHTS AND PRIVILEGES GRANTED CORPORATIONS ORGANIZED UNDER THE GENERAL AND BUSINESS CORPORATION LAW.

IN TESTIMONY WHEREOF, I HAVE SET MY HAND AND IMPRINTED THE GREAT SEAL OF THE STATE OF MISSOURI, ON THIS, THE 24TH DAY OF AUGUST, 1994.

*Judith K. Moriarty*  
Secretary of State

\$54.00





# State of Missouri

Judith K. Moriarty, Secretary of State  
P.O. Box 778, Jefferson City, Mo. 65102

Corporation Division

FILED AND CERTIFICATE OF  
INCORPORATION ISSUED

AUG 24 1994

## Articles of Incorporation

*Judith K. Moriarty*

(To be submitted in duplicate by an attorney or an incorporator.)

The undersigned natural person(s) of the age of eighteen years or more for the purpose of forming a corporation under The General and Business Corporation Law of Missouri adopt the following Articles of Incorporation:

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MISSOURI  
PUBLIC SERVICE COMMISSION

### Article One

The name of the corporation is VALLEY WOODS WATER COMPANY, INC.

### Article Two

The address, including street and number, if any, of the corporation's initial registered office in this state is \_\_\_\_\_

338 Goff Creek Road, Spokane, Missouri 65754

and the name of its initial agent at such address is JT Edley

### Article Three

The aggregate number, class and par value, if any, of shares which the corporation shall have authority to issue shall be:

Thirty Thousand (30,000) shares common stock with One Dollar (\$1.00) per share par value.

The preferences, qualifications, limitations, restrictions, and the special or relative rights, including convertible rights, if any, in respect to the shares of each class are as follows:

None

EXHIBIT

B.

PAGE

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OF

5.

### Article Four

The extent, if any, to which the preemptive right of a shareholder to acquire additional shares is limited or denied.

None

### Article Five

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

Name	Street	City
JT Edley	338 Goff Creek Road	Spokane, Missouri 65754
Jean Edley	338 Goff Creek Road	Spokane, Missouri 65754

### Article Six

(Designate which and complete the applicable paragraph.)

The number of directors to constitute the first board of directors is \_\_\_\_\_. Thereafter the number of directors shall be fixed by, or in the manner provided by the bylaws. Any changes in the number will be reported to the Secretary of State within thirty calendar days of such change.

OR

The number of directors to constitute the board of directors is one. (The number of directors to constitute the board of directors must be stated herein if there are to be less than three directors. The person to constitute the first board of directors may, but need not, be named.)

### Article Seven

The duration of the corporation is perpetual

EXHIBIT

B

PAGE

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OF

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Article Eight

The corporation is formed for the following purposes:

1. To construct, install and maintain well and water distribution systems for sale of water to the public.

2. To construct, install and maintain a sewer system and all other facilities necessary for the purpose of providing a waste disposal system to the public.

3. To purchase and sell real property and develop and construct improvements thereon for residential, commercial, agricultural and industrial purposes.

4. To do everything necessary, proper, advisable or convenient for the accomplishment of the purposes hereinabove set forth, and to do all things incidental to them or in connection with them that are not forbidden by the General and Business Corporation Law of Missouri, by other law, or by these Articles of Incorporation.

5. To exercise all of the powers conferred upon it as a corporation as set forth in Section 351.385 of the Revised Statutes of Missouri, each of which powers is hereby incorporated by reference and is stated to be one of the purposes for which this corporation is formed.

ARTICLE NINE

See attachment hereto.

IN WITNESS WHEREOF, these Articles of Incorporation have been signed this 23rd day of August, 1994.

J. I. Edley  
J. I. Edley

EXHIBIT B  
PAGE 3 OF 5

ARTICLE NINE

Article Nine shall be added to read as follows: No stockholder of the corporation shall transfer, alienate or in any way dispose of any share of stock of the corporation unless such stock shall first have been offered for sale to the corporation. The corporation reserves and shall have the exclusive right and privilege to purchase such stock at a price equal to the book value thereof as shown on the last annual audit of the corporation, within 90 days after receipt of written notice of such proposed transfer. Notice of the proposed transfer shall be given to the corporation, and the notice shall include the number of shares proposed to be transferred, the consideration to be paid, and the name of the prospective transferee. If the corporation has not exercised this option prior to the expiration of such time, the stockholder shall be free to transfer, alienate, or otherwise dispose of such stock without any restriction.

State of MISSOURI  
County of CHRISTIAN } ss.

I, Patty McDaniel, a Notary Public, do hereby certify that  
on this 23rd day of August, 19 94, personally appeared before me  
JT Edley (~~XXXX~~)

who being by me first duly sworn, (~~severally~~) declared that he is (~~they are~~) the person(s) who signed the foregoing  
document as incorporator(s), and that the statements therein contained are true.

(Notarial Seal)

*Patty McDaniel*  
Notary Public

My commission expires August 22, 1998

FILED AND CERTIFICATE OF  
INCORPORATION ISSUED

AUG 24 1994

*Judith K. Moriarty*

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EXHIBIT B  
PAGE 5 OF 5

**SEWER SYSTEM**

**FEASIBILITY STUDY**

**for:**

**VALLEY WOODS WATER COMPANY, INC.**

**CHRISTIAN COUNTY, MISSOURI**

**OWNER:**

**VALLEY WOODS WATER COMPANY, INC.**

**338 GOFF CREEK ROAD**

**SPOKANE, MISSOURI 65754**

**by:**

**AMSINGER - DAY, INC.**

**HIGHWAY 160 & CC**

**P.O. BOX 1530**

**NIXA, MISSOURI 65714**

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- X. RECOMMENDATIONS

## APPENDICES

1. Metes and Bounds Description of Sewer District
2. Exhibit I: Sewer District Map
3. Exhibit II: Acknowledgment Letter from Department of Natural Resources
4. Figure 3-1
5. Figure 3-2

## I. INTRODUCTION

The purpose of this report is to present to the Public Service Commission the results of a study commissioned to determine the feasibility of a proposed sewer system. The study area that is proposed to be served by this sewer system is shown in Exhibits I and II.

The study area shown consists of Valley Woods Addition Phase I, Valley Woods Addition Phase II, and adjacent lands per legal descriptions Exhibits I and II. The study area is located in an area which is expected to see moderate to rapid growth in the near future, based on the growth rate being experienced in the nearby cities of Springfield and Nixa and the rest of Christian County.

## II. TOPOGRAPHY and GEOLOGY

The topography of the site ranges from gently sloping in the northern half to steeper in the south half. The entire site drains to the south to nearby Goff Creek. Total relief is in excess of 65 feet.

The site is located along the eastern edge of the Springfield Plateau, which is situated in the Interior Highland Province (Figure 3-1). This landform is underlain by rocks of the Mississippi System (Figure 3-2). Weathering of these primarily limestone formations often results in the development of springs, caves, sinkholes and other features known collectively as Karst. The presence of these features can greatly impact development of a site and should be thoroughly investigated prior to any development. Review of current U.S. Geological Survey data and on-site inspections failed to identify the presence of any sinkholes. Since the site lies primarily within an identified drainage basin there is little reason to believe that sinkholes would be encountered during development of any portions of the site. There were also no indications of caves or significant springs on the site.

In general terms, this site is geologically stable and will support most types of development. As the intensity of use increases, a more detailed analysis of the geology may be necessary. The information gained from such an analysis would not limit the use of the land in all methods to ensure quality and safety. Since the development potential of this site is primarily as low density residential, with some light commercial along U.S. Highway 160, there is little reason to undertake a more significant study of the geology.

## III. POPULATION DISTRIBUTION and GROWTH

As mentioned earlier in this report, this study is expected to have a moderate rapid growth rate. Recently, this area in southern Christian County has been experiencing a growth rate of approximately 14%. The City of Springfield, Missouri, which is located approximately 19 miles to the north of the study area, has also been experiencing rapid growth to the south. The City of Springfield, with a population of 150,000 plus, is the third largest city in the State. Many people

who are moving into the Springfield area are locating in the south part of the city, or in rural areas to the south. This would account for much of the growth in southern Christian County since many people working in Springfield are locating in this area and commuting to work. The new 160 Highway makes traveling between the two areas very convenient. There has also been a considerable amount of commercial development along U.S. Route 160 adjacent to the study area.

IV. BASIS OF DESIGN

The system is designed to collect and treat the waste water for forty (40) residential users of Valley Woods Addition Phase I with land provisions for moderate expansion if growth should require.

Initial Users (1995)	14
Estimated Users by 1997	40
Estimated Population by 1997	148
Average Daily Waste Water	90 gallons per person
Required Plant Capacity 1997	14,500 gallons per days

V. COLLECTION SYSTEM

Gravity sewer lines were sized and located, as indicated on the drawings, to serve as many people within the proposed district as economically possible. The sewer lines, as shown on the drawings, will be constructed inside dedicated easements. Any future construction on private property will be done within a permanent easement of adequate size. All private property within the easement will be returned to a condition equal to, or better, than the existing features prior to construction operations. The required easement will be obtained by the water company prior to commencing the construction of the system. Co-ordination and final determination of future sewer line routing will be accomplished after due consultation with the County Road District, Missouri State Highway Commission, and the various utilities affected.

VI. COST ESTIMATE

Treatment facility including: Septic Tanks, Recirculating Sand Filter, Appurtenances, Engineering, Surveying, and Legal:	\$ 65,000.00
Collection System: Sewer Mains, 3,400 L.F @ \$12.00 each:	<u>\$ 40,800.00</u>
TOTAL:	<u>\$105,800.00</u>

Cost per connection (\$105,800.00/40 users) = \$2,645.00

VII. FINANCING

The financing of costs related to the construction of this sewer system have been arranged by a conventional loan from Ozark Bank, Ozark, Missouri.

For estimating purposes, an interest rate of 10% per annum for a period of thirty years will be used.

VIII. ESTIMATED YEARLY OPERATING COSTS

Annual Interest Cost:	\$ 6,500.00
4% Annual Depreciation:	\$ 1,625.00
Electric Power and Phone:	\$ 400.00
Materials and Supplies:	\$ 300.00
Labor:	\$ 600.00
Miscellaneous:	\$ <u>100.00</u>
 Total Annual Cost to Operate System:	 \$ 9,525.00

IX. INCOME

40 users at \$20.00 per month x 12 months:	\$ 9,600.00
Estimated annual costs to operate system:	\$ 9,525.00
Margin:	\$ + 75.00

X. RECOMMENDATIONS

This request for Public Service Commission Certification of Convenience and Necessity is based on an economic analysis which illustrates the need for, and economy of, such a utility.

Metes and Bounds  
Description Of  
Sewer Distric

SEWER DISTRICT:

ALL OF LOTS 2, 3, 4 AND 5 IN VALLEY WOODS PLAT NO. 1 AS RECORDED IN BOOK G AT PAGE 260, IN THE RECORDER'S OFFICE IN OZARK, CHRISTIAN COUNTY, MISSOURI.

AND:

ALL OF VALLEY WOODS PLAT NO. 2 AS RECORDED IN BOOK G AT PAGE 390, IN THE RECORDER'S OFFICE IN OZARK, CHRISTIAN COUNTY, MISSOURI.

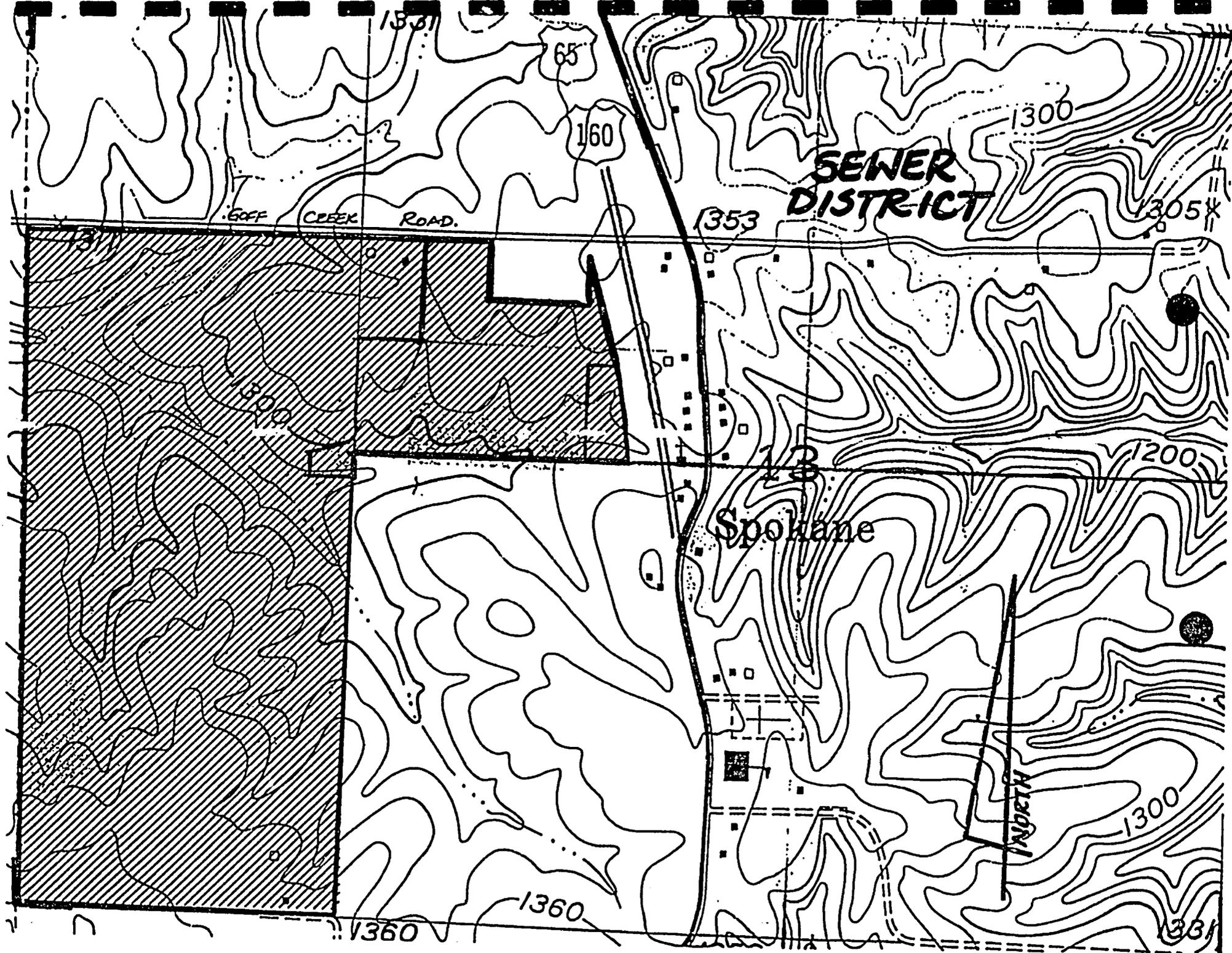
AND:

ALL OF THAT PART OF THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 13, TOWNSHIP 25-NORTH, RANGE 22-WEST LYING WEST OF VALLEY WOODS PLAT NO. 2 IN CHRISTIAN COUNTY, MISSOURI.

AND:

ALL OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) AND ALL OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 14, TOWNSHIP 25-NORTH, RANGE 22-WEST IN CHRISTIAN COUNTY, MISSOURI.

Appendix 1



STATE OF MISSOURI  
DEPARTMENT OF NATURAL RESOURCES

McL Canaleon, Governor • David A. Shaw, Director

DIVISION OF ENVIRONMENTAL QUALITY

Southwest Regional Office

3.100 Christian County  
Valley Woods Addition

318 Park Central East, Suite 500 Springfield, MO 65806-2218

(417)895-6950

FAX (417)895-6954

CERTIFIED MAIL

P 376 160 060

August 3, 1994

RECEIVED

Mr. J.T. Edley  
Route 1, Box 74-3  
Spokane, MO 65754

AUG 04 1994

A•D, INC.

Dear Mr. Edley:

We have reviewed your engineering report for the wastewater collection and treatment facilities for the above referenced project and offer these comments.

1. Please submit completed construction permit applications for the collection and treatment system or submit them together on one Form B. If you are anxious to begin immediately on the collection lines, I suggest you submit separate applications.
2. Please provide a copy of the Certificate of Incorporation and the restrictive covenants for the Homeowners Association. The enacted restrictive covenants for the homeowners association must be submitted before the permit is approved. The covenants must contain several items mentioned in our permit regulations - power to require connection to central collection system, the power to require fees for O&M of the wastewater facilities and enforce fees by liens, and the power to convey the wastewater facilities to another operating authority should one become available.
3. Engineering reports must address the treatment site flooding potential. All treatment sites must be above the 25 year flood level.
4. Engineering reports must address regionalization and no-discharge alternatives to systems discharging to losing receiving streams. There is no requirement that land application storage cells be only 40 inches deep as suggested in the report. A two cell storage system is required for an irrigation holding basin with the first cell designed for primary treatment of BOD. Agricultural irrigation rates may be range up to 25 inches/acre/year.



5. Please note the permittee is responsible for insuring that land application of biosolids (treated domestic wastewater sludge) meets federal 503 and state requirements which includes meeting pathogen and vector attraction reduction requirements and record keeping.
6. Sludge from the septic tanks may be land applied if treated according to the federal 503 requirements for septage (lime stabilization for at least 30 minutes). This may be accomplished in the haulers truck by sucking dry lime into the truck through an auxiliary hose while retrieving the septage. See the enclosed University Extension handout.
7. The report indicated the treatment plants will be done in phases with Phase I being only about 30%. Please consider doing 50/50 phases for flow splitting purposes unless you can provide a flow splitter design that consistently splits flows at the proposed 30/70 ratio.
8. The filter with the PVC liner will be acceptable as proposed only if the collapse potential rating is not severe. I have requested the geologist to provide this information as soon as possible.
9. For sand media, we recommend an effective size between 1.5 and 3 mm, ideally around 2 mm.
10. On the plans, please specify that all precast concrete tanks be water tested, and poured concrete tanks be vibrated.
11. Please use light-weight manhole lids and access covers on treatment plant tanks.
12. Please show final grading at the plant which provides adequate drainage away from and around the filter.
13. Collection/drain lines in the filter may be spaced up to about 15 feet if necessary.
14. The actuator valves may be placed above ground, without being insulated if the lines can drain between cycles.
15. Dechlorination will be required for the chlorination basin.
16. The owner is advised that construction without first obtaining a Construction Permit from the Missouri Department of Natural Resources constitutes a violation of Missouri Clean Water Laws and Regulations. Remedial actions as

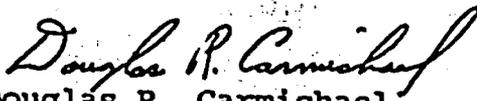
provided by the Missouri Clean Water Law may be initiated for any non-compliance.

17. The specifications must state that any deviations from the approved plans affecting capacity, flow, or plant operation must be approved by this office before changes are made. This requirement does not include structural or minor revisions not affecting the aforementioned items.
18. If five or more acres of earth are to be disturbed during construction, the owner must obtain an NPDES stormwater permit from the Water Pollution Control Program in Jefferson City, Missouri. This permit requires the enclosed Application Forms E & G and an application fee of \$150.
19. Approval must be obtained from the Public Drinking Water Program in Jefferson City, Missouri for public drinking water facilities.
20. In accordance with the enclosed policy on expedited permit reviews, the requested information must be submitted within thirty (30) days of your receipt of this letter.

The submittal of the construction permit application form will allow me to draft the operating permit for the 30 day public notice. If you have any questions, please call me at 417/895-6950.

Sincerely,

SOUTHWEST REGIONAL OFFICE

  
Douglas R. Carmichael  
Environmental Engineer

Enclosures

✓ c: Will Nopper, P.E., Amsinger-Day, Inc.

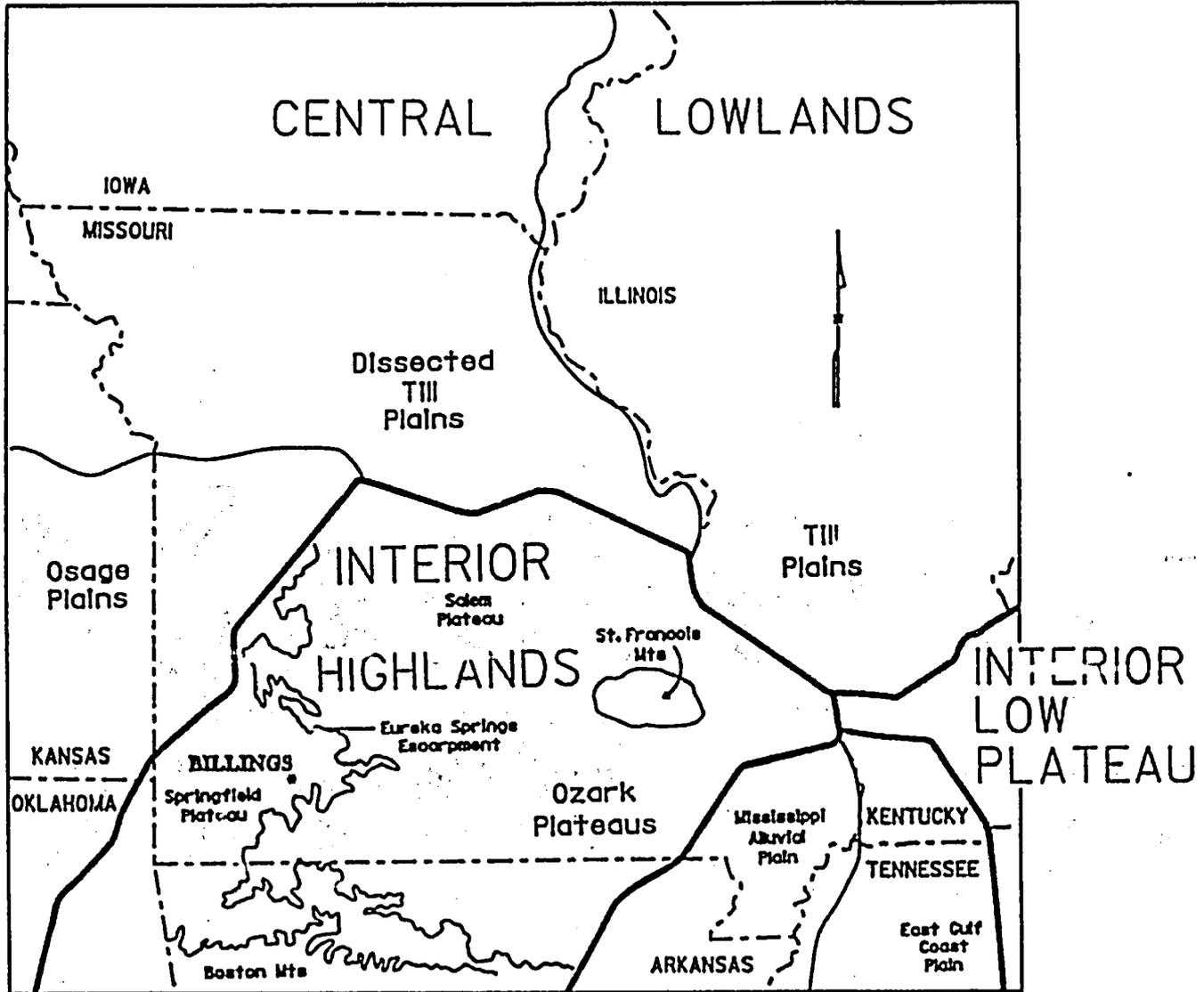
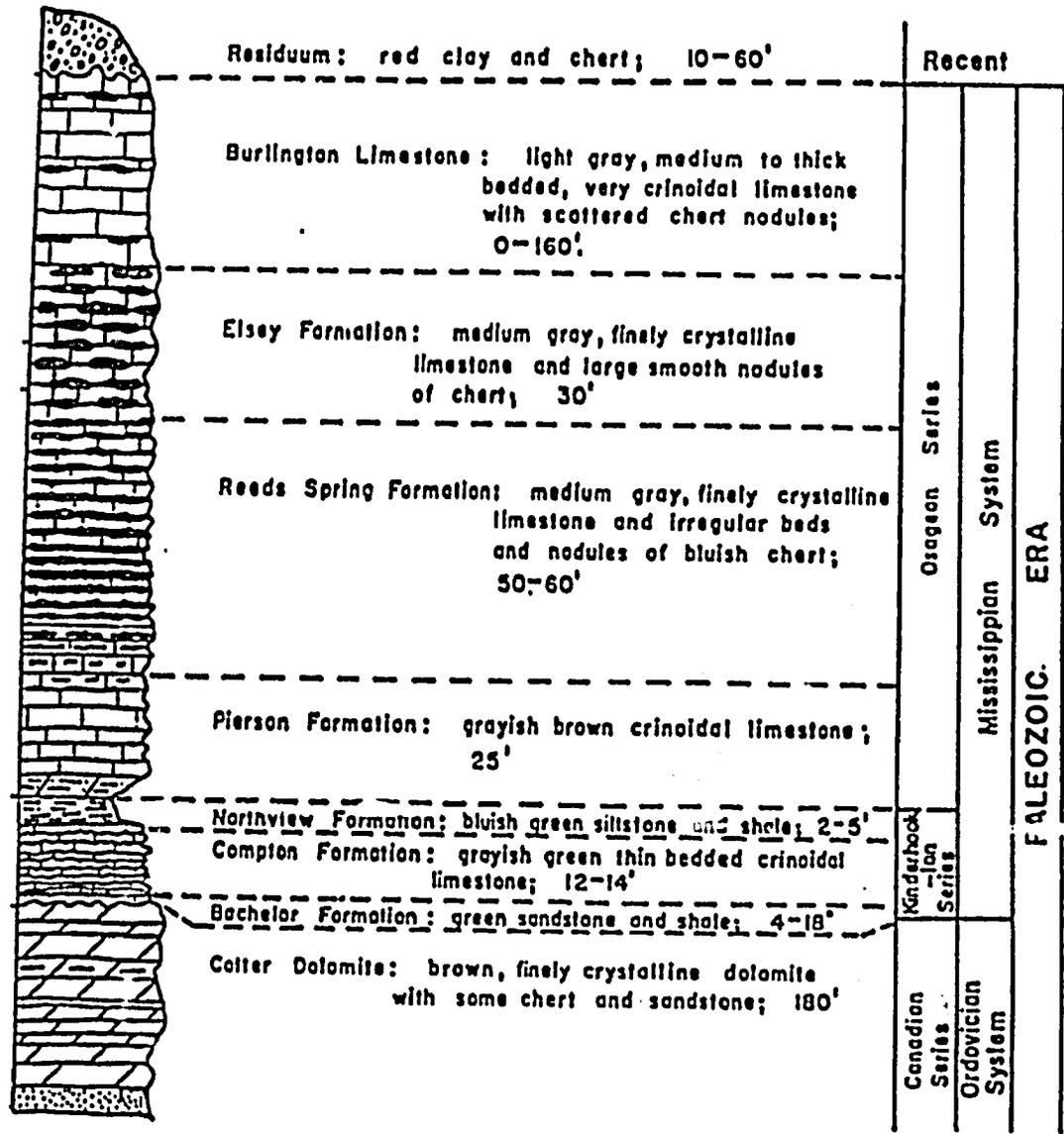


Figure 3-1

## Generalized Stratigraphic Sequence



Source: Vineyard, Jerry D. and Fellows, Larry D., Missouri Geological Survey and Water Resources, R1 37, 1969.

Figure 3-2



**WATER SYSTEM**

**FEASIBILITY STUDY**

**for:**

**VALLEY WOODS WATER COMPANY, INC.**

**CHRISTIAN COUNTY, MISSOURI**

**OWNER:**

**VALLEY WOODS WATER COMPANY, INC.**

**338 GOFF CREEK ROAD**

**SPOKANE, MISSOURI 65754**

**by:**

**AMSINGER - DAY, INC.**

**HIGHWAY 160 & CC**

**P.O. BOX 1530**

**NIXA, MISSOURI 65714**

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- XIII. INCOME
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## APPENDICES

1. Metes and Bounds Description of Water District
2. Exhibit I: Water District Map
3. Exhibit II: Acknowledgment Letter from Department of Natural Resources, Public Drinking Water Program
4. Figure 3-1
5. Figure 3-2

## I. INTRODUCTION

The purpose of this report is to present to the Public Service Commission the results of a study commissioned to determine the feasibility of a proposed water system. The study area that is proposed to be served by this water system is shown in Exhibits I and II.

The study area shown consists of Valley Woods Addition Phase I, Valley Woods Addition Phase II, and adjacent lands per legal descriptions Exhibits I and II. The study area is located in an area which is expected to see moderate to rapid growth in the near future, based on the growth rate being experienced in the nearby cities of Springfield and Nixa and the rest of Christian County.

## II. EXISTING WATER SUPPLIES

The existing water supply for the J.T. Edley home is located 1,300 feet from the proposed waste water treatment site. The well on the west side of the residence was drilled, in July of 1964, to a depth of 455 feet. The static water depth is 200 feet and the yield is 20 gallons per minute. The well is unchlorinated. Gwen Hubble, Christian County Sanitarian, tested the well water in 1989 and found no E. Coli to be present.

## III. TOPOGRAPHY and GEOLOGY

The topography of the site ranges from gently sloping in the northern half to steeper in the south half. The entire site drains to the south to nearby Goff Creek. Total relief is in excess of 65 feet.

The site is located along the eastern edge of the Springfield Plateau, which is situated in the Interior Highland Province (Figure 3-1). This landform is underlain by rocks of the Mississippi System (Figure 3-2). Weathering of these primarily limestone formations often results in the development of springs, caves, sinkholes and other features known collectively as Karst. The presence of these features can greatly impact development of a site and should be thoroughly investigated prior to any development. Review of current U.S. Geological Survey data and on-site inspections failed to identify the presence of any sinkholes. Since the site lies primarily within an identified drainage basin there is little reason to believe that sinkholes would be encountered during development of any portions of the site. There were also no indications of caves or significant springs on the site.

In general terms, this site is geologically stable and will support most types of development. As the intensity of use increases, a more detailed analysis of the geology may be necessary. The information gained from such an analysis would not limit the use of the land in all methods to ensure quality and safety. Since the development potential of this site is primarily as low density residential, with some light commercial along U.S. Highway 160, there is little reason to undertake a more significant study of the geology.

#### IV. POPULATION DISTRIBUTION and GROWTH

As mentioned earlier in this report, this study is expected to have a moderate rapid growth rate. Recently, this area in southern Christian County has been experiencing a growth rate of approximately 14%. The City of Springfield, Missouri, which is located approximately 19 miles to the north of the study area, has also been experiencing rapid growth to the south. The City of Springfield, with a population of 150,000 plus, is the third largest city in the State. Many people who are moving into the Springfield area are locating in the south part of the city, or in rural areas to the south. This would account for much of the growth in southern Christian County since many people working in Springfield are locating in this area and commuting to work. The new 160 Highway makes traveling between the two areas very convenient. There has also been a considerable amount of commercial development along U.S. Route 160 adjacent to the study area.

#### V. WATER SUPPLY TREATMENT

Water will be supplied by a new deep well in accordance with requirements by the Missouri Department of Natural Resources, Public Drinking Water Program. A continuous check of the water supply is required by the Missouri Department of Health. If it is established that the water is subject to continuous or intermittent bacterial contamination, or when chemical constituents cause the water to be unfit for domestic use, the Department of Health will require continuous disinfection and or some other treatment, if indicated.

#### VI. BASIS OF DESIGN

The system is designed to provide safe, potable water for fourteen (14) residential users of Valley Woods Addition Phase I in addition to five (5) residential users at adjacent rental property, owned by J.T. Edley, making a total of 19 users initially. An additional twenty-six (26) lots of Valley Woods Addition Phase II is planned to be added to the system within the next three (3) years; bringing the total number of users to forty-five (45).

Initial Users (1995)	19
Estimated Users by 1997	45
Estimated Population by 1997	166
Average Daily Water Use	50 gallons per person
Required Well Capacity 1997	23.04 gallons per minute
Required Pump Capacity 1997	11.52 gallons per minute
Required Storage Capacity 1997	8,300 gallons

## Distribution System:

Minimum Line Size	6 inch
Minimum Pressure	20 pounds per square inch
Peak Flow Rate	166 people x 50 gpcd = 8,300 gpd
Gallons per Minute	5.76 gallons per minute 5.76 x 6 = 34.56 gallons per minute

## VII. MATERIALS and CONSTRUCTION PROCEDURES

The materials specified for construction of the water supply and distribution system and related appurtenances comply with the requirements of the Missouri Division of Health, American Water Works Association, American Standards Association, Federal Government; and for plastic pipe, the National Sanitation Foundation. An economical and safe working factor of safety was included in the design of the pipes, which is composed of materials with wall thickness capable of withstanding internal pressure of 150 pounds per square inch. For all pipes we have recommended the use of polyvinyl chloride plastic pipe, except where the State Highway Department requires the use of cast iron pipe for highway crossings and where copper service lines are required. Many water systems of this size are being installed entirely with semi-rigid polyvinyl chloride pipe with good results at economical price. We have recommended that the system be constructed with polyvinyl chloride pipe, except where otherwise required by the Highway Department.

"Dead End" line will be kept to a minimum by installing the service lines at the end of the main line where possible; but where a dead end exists a flush valve, or fire hydrants, will be installed to allow flushing of the line.

## VIII. TRANSMISSION and DISTRIBUTION SYSTEM

Transmission and distribution lines were sized and located, as indicated on the drawings, to serve as many people within the proposed district as economically possible. The water lines, as shown on the drawings, will be constructed inside dedicated easements. Any future construction on private property will be done within a permanent easement of adequate size. All private property within the easement will be returned to a condition equal to, or better, than the existing features prior to construction operations. The required easement will be obtained by the water company prior to commencing the construction of the system. Co-ordination and final determination of future water line routing will be accomplished after due consultation with the County Road District, Missouri State Highway Commission, and the various utilities affected.



For estimating purposes, an interest rate of 10% per annum for a period of thirty years will be used.

XII. ESTIMATED YEARLY OPERATING COSTS

Investment Base:

Well, Storage, and Appurtenances:	\$ 35,000.00
Pro-rated Engineering and Legal:	\$ 5,500.00
Land Cost:	<u>\$ 10,000.00</u>
SUB-TOTAL:	\$ 50,500.00

\$50,500.00 at 10% interest = \$5,050.00 per year

Summary:

Annual Interest Cost:	\$ 5,050.00
4% Annual Depreciation:	\$ 2,020.00
Electric Power and Phone:	\$ 720.00
Materials and Supplies:	\$ 300.00
Labor:	\$ 600.00
Miscellaneous:	<u>\$ 100.00</u>
Total Annual Cost to Operate System:	\$ 8,790.00

It is expected that the operating costs presented above will remain basically unchanged during the first three years of operation.

XIII. INCOME

Estimated water use per connection based on calculations and survey of other water utilities equals 5,550 gallons per month.

Monthly Rate Schedule Sample:

Minimum, including first 1,000 gallons:	\$ 7.50
Additional 4,550 gallons @ \$2.00/1,000 gallons:	<u>\$ 9.10</u>
	16.60

Based on the above estimates, the projected annual return is as follows:

45 users at \$16.60 per month x 12 months:	\$ 8,964.00
Estimated annual costs to operate system:	\$ 8,790.00
Margin:	\$ + 174.00

XIV. RECOMMENDATIONS

This request for Public Service Commission Certification of Convenience and Necessity is based on an economic analysis which illustrates the need for, and economy of, such a utility.

Metes and Bounds  
Description Of  
Water District

WATER DISTRICT

ALL OF VALLEY WOODS PLAT NO. 1 AS RECORDED IN BOOK G AT PAGE 260,  
IN THE RECORDER'S OFFICE IN OZARK, CHRISTIAN COUNTY, MISSOURI.  
AND:

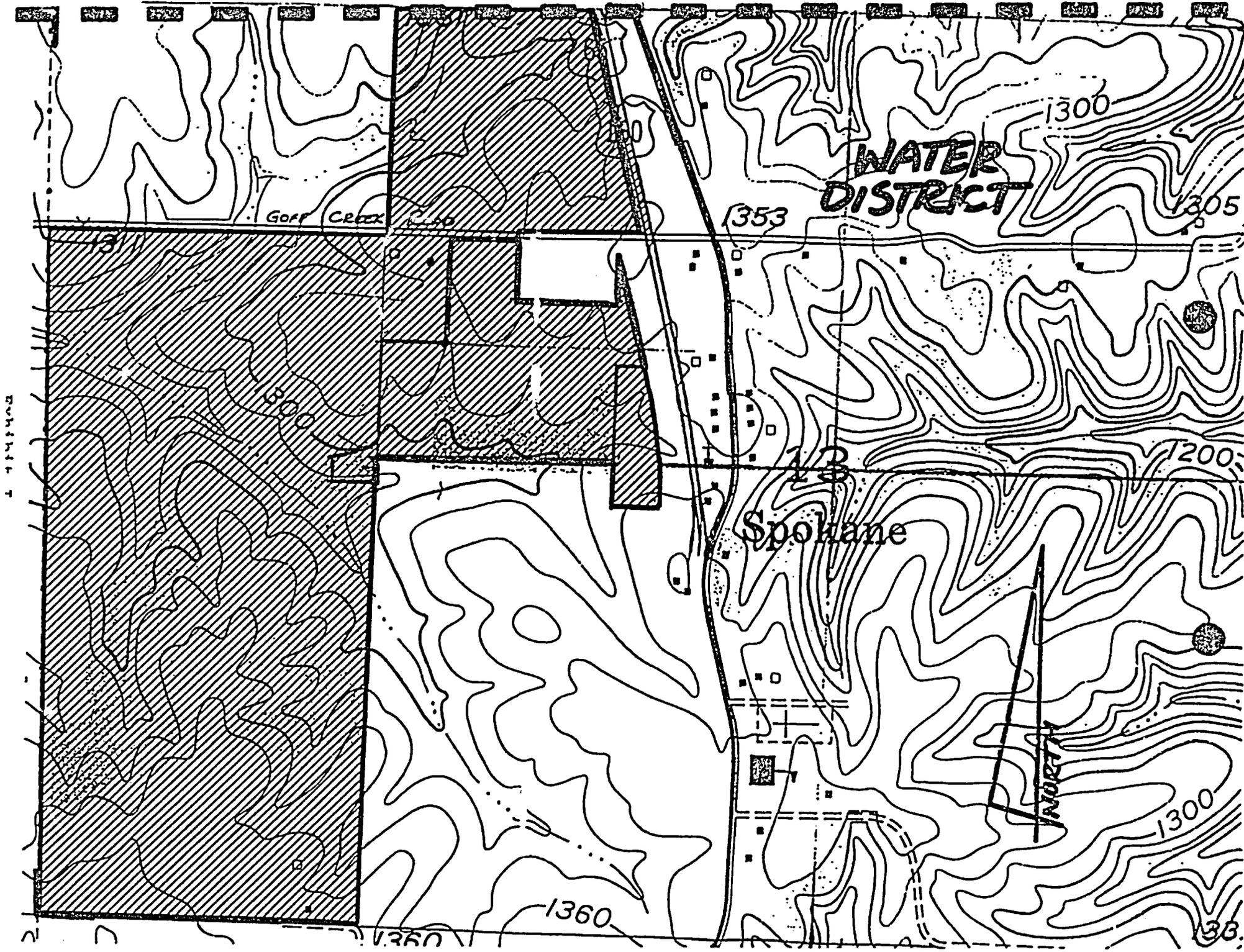
ALL OF VALLEY WOODS PLAT NO. 2 AS RECORDED IN BOOK G AT PAGE 390,  
IN THE RECORDER'S OFFICE IN OZARK, CHRISTIAN COUNTY, MISSOURI.  
AND:

ALL OF THAT PART OF THE SOUTHWEST QUARTER (SW 1/4) OF THE  
NORTHWEST QUARTER (NW 1/4) OF SECTION 13, TOWNSHIP 25-NORTH,  
RANGE 22-WEST LYING WEST OF VALLEY WOODS PLAT NO. 2 IN CHRISTIAN  
COUNTY, MISSOURI.  
AND:

ALL OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER  
(NE 1/4) AND ALL OF THE NORTHEAST QUARTER (NE 1/4) OF THE  
SOUTHEAST QUARTER (SE 1/4) OF SECTION 14, TOWNSHIP 25-NORTH,  
RANGE 22-WEST IN CHRISTIAN COUNTY, MISSOURI.  
AND:

ALL OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER  
(NW 1/4) OF SECTION 13, TOWNSHIP 25-NORTH, RANGE 22-WEST LYING  
WEST OF THE WEST LINE OF U.S. HIGHWAY 160, AS IT NOW EXISTS, IN  
CHRISTIAN COUNTY, MISSOURI.

Appendix 1



North  
1  
2  
3  
4  
5  
6  
7

**WATER  
DISTRICT**

Spokane

GOLF CREEK ROAD

1353

1300

1305

1200

1360

1300

1365

1353

STATE OF MISSOURI  
DEPARTMENT OF NATURAL RESOURCES

3rd Emanuel, Governor • David A. Sauer, Director

DIVISION OF ENVIRONMENTAL QUALITY  
P.O. Box 176 Jefferson City, MO 65102-0176

RECEIVED

JUN 15 1994

A•D, INC.

AR  
Valley Woods Addition  
Christian Co.  
Review No. 51383-94

June 10, 1994

Mr. J. T. Edley  
Valley Woods Addition  
Route 1 Box 74-3  
Spokane, Missouri 65754

Dear Mr. Edley:

This is to advise that an engineering report for a new well for Valley woods Addition, Christian County, Missouri was submitted for review and approval by Amsinger-Day, Inc., consulting engineers, Nixa, Missouri on June 6, 1994. Please make reference to Review Number 51383-94 when submitting documents pertinent to this proposal.

A field survey and review of the documents will be made as rapidly as possible. Approximately 30-45 days are required by our staff to review the preliminary plans and discuss possible changes with your engineers. You will be advised in writing of our approval of the proposals set forth in the documents.

A copy of the regulations regarding submission of plans and approval of water works is enclosed. Please note that it is necessary to obtain written approval of detailed plans before construction is started.

Sincerely,

PUBLIC DRINKING WATER PROGRAM

*Ronald C. Mueller*

102 Breck E. Summerford, P.E., Chief  
Permits Section

BES:be

Enclosure

c: Amsinger-Day, Inc.  
Southwest Regional Office



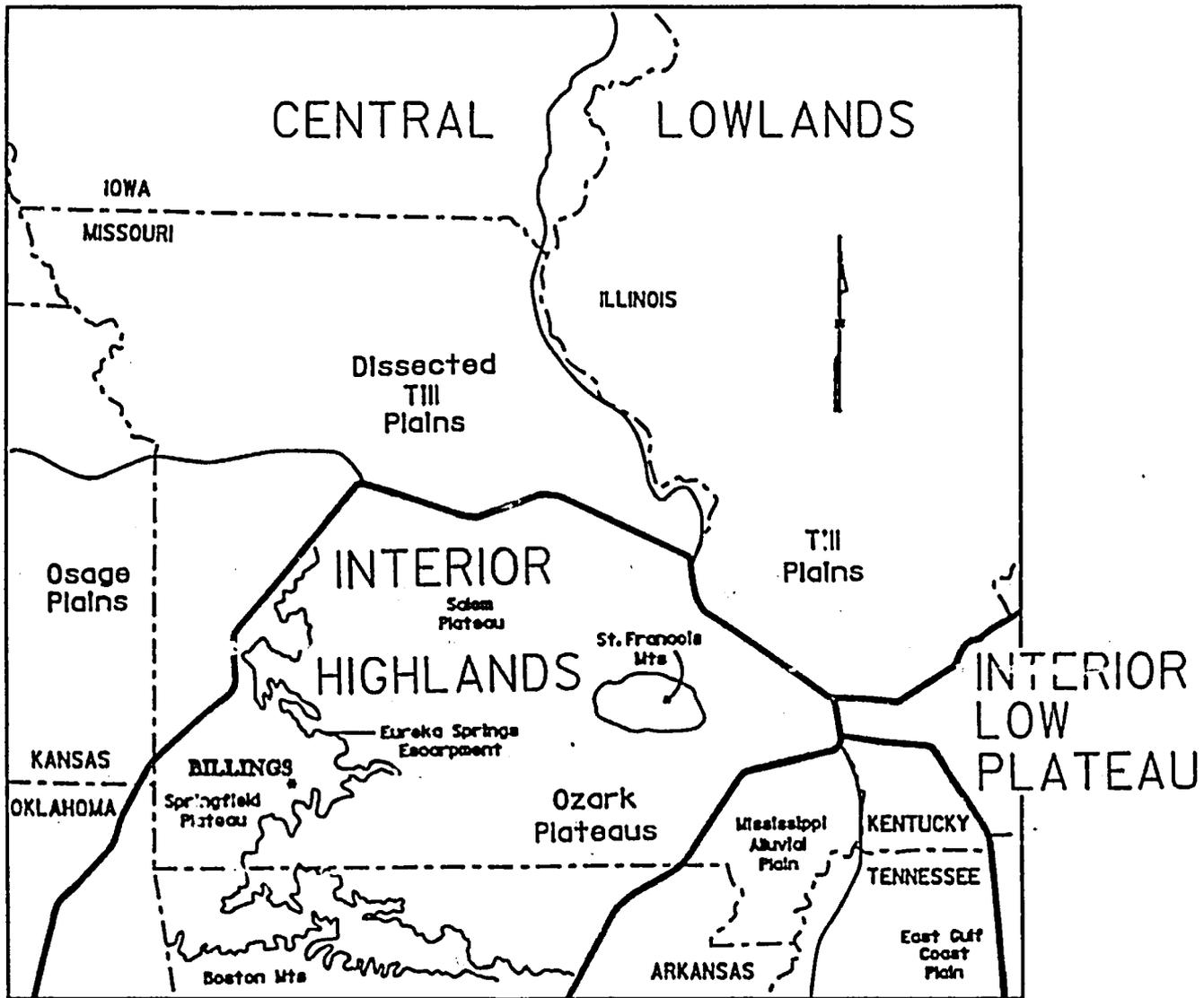
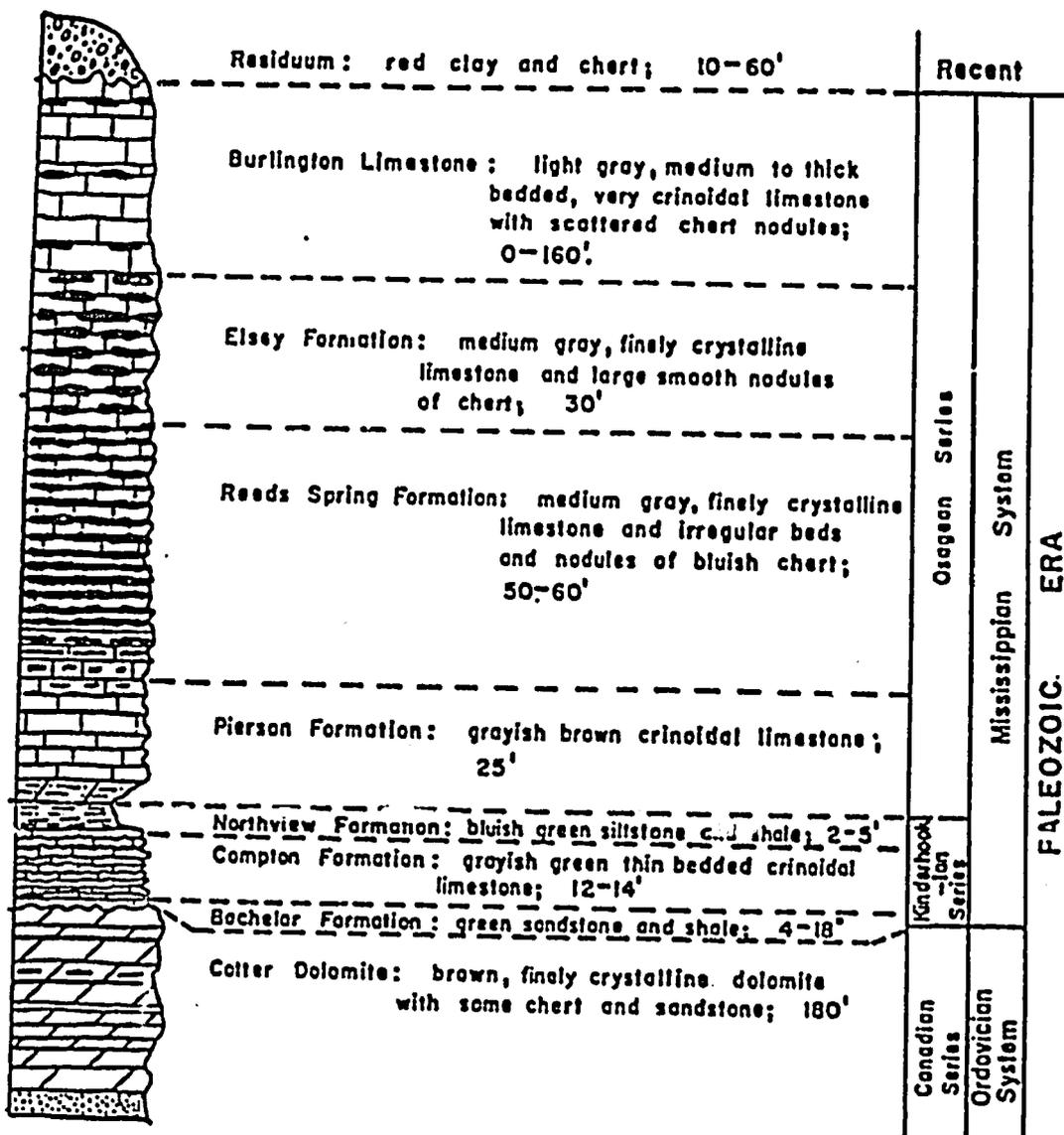


Figure 3-1

## Generalized Stratigraphic Sequence



Source: Vineyard, Jerry D. and Fellows, Larry D., Missouri Geological Survey and Water Resources, R1 37, 1969.

Figure 3-2

**SEWER SYSTEM**

**FEASIBILITY STUDY**

for:

**VALLEY WOODS WATER COMPANY, INC.**

**CHRISTIAN COUNTY, MISSOURI**

**OWNER:**

**VALLEY WOODS WATER COMPANY, INC.  
338 GOFF CREEK ROAD  
SPOKANE, MISSOURI 65754**

**FILED  
OCT 13 1994  
MISSOURI  
PUBLIC SERVICE COMMISSION**

by:

**AMSINGER - DAY, INC.  
HIGHWAY 160 & CC  
P.O. BOX 1530  
NIXA, MISSOURI 65714**

**SEWER SYSTEM**

**FEASIBILITY STUDY**

for:

**VALLEY WOODS WATER COMPANY, INC.**

**CHRISTIAN COUNTY, MISSOURI**

OWNER:

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**OCT 13 1994**  
**MISSOURI**  
**PUBLIC SERVICE COMMISSION**

**EXHIBIT**           C            
**PAGE**            **OF**