

**PRELIMINARY ENGINEERING REPORT  
2008 WATER LINE EXTENSIONS**

Prepared For

**LARUE COUNTY WATER DISTRICT # 1  
6215 North L&N Turnpike  
Buffalo, KY 42716  
Phone (270) 325-3242**

RECEIVED

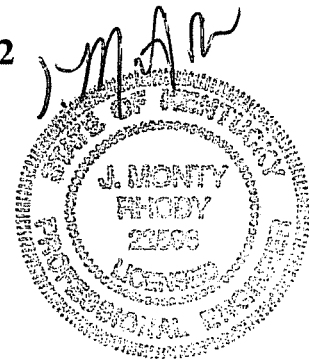
FEB 14 2012

PUBLIC SERVICE  
COMMISSION

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MAY 2009

1-31-2012

## TABLE OF CONTENTS

I.	Introduction.....	1
II.	Existing Water System.....	1
III.	The Proposed Project.....	2
IV.	Cost Summary.....	2 - 4
V.	Funding.....	4
VI.	Rate Analysis.....	5
	A.    Expenses.....	5
	1.    General.....	5
	2.    Operation and Maintenance Costs.....	5
	3.    Debt Service.....	6
	4.    Coverage.....	6
	5.    Summary of Expenses.....	6 & 7
	B.    Income Required.....	7
	1.    General.....	7
	2.    Customers and Average Usage.....	7
	3.    Estimated Income.....	7 & 8
	C.    Summary of Rate Analysis.....	8
VII.	Recommendation.....	8

TABLE 1 - BREAKDOWN OF PROJECT BY ROADS.....	2
TABLE 2 – ESTIMATED CONSTRUCTION COSTS.....	3
TABLE 3 - ESTIMATED PROJECT COST.....	3
TABLE 4 - FUNDING SOURCES.....	4
TABLE 5 - PROPOSED O&M EXPENSES.....	5
TABLE 6 - SUMMARY OF EXPENSES.....	6
TABLE 7 - SUMMARY OF CUSTOMER COUNT AND USAGE.....	7
TABLE 8 - ESTIMATED INCOME FROM WATER SALES.....	8
TABLE 9 - SUMMARY OF RATE ANALYSIS.....	8

APPENDIX A      Project Maps

## **I. Introduction**

The Larue County Water District # 1 is a water utility controlled by three board members. These board members control the Larue County Water District #1 by voting on issues concerning the District at their monthly meeting. The District is regulated by the Kentucky Division of Water (DOW) and the Public Service Commission (PSC).

Through the proposed 2008 Water Line Extensions, the District will extend water service into un-served areas of Larue County. Presently, water in the project area is supplied by wells and cisterns. The Larue County Health Department has performed tests on water samples from the project area. It was found that many of the samples were contaminated and considered unsafe for human consumption. The proposed project should eliminate these existing health and sanitation hazards for those persons currently living in the proposed service area.

## **II. Existing Water System**

The Larue County Water District # 1 (LCWD) operates a water distribution system that is classified by the Division of Water as Class II-D. This classification means that the system serves a population of at least 1,500 but not more than 15,000.

The LCWD is in excellent condition, having completed a large portion of the system within the last 10-15 years. The distribution system has continued to grow and now serves about 3300 customers through approximately 360 miles of water main ranging in size from 2-inch through 8-inch diameter. The LCWD also has seven (7) water storage tanks with a combined storage capacity of approximately 900,000 gallons.

The LCWD currently has seven sources of water supply; the City of New Haven, Hardin County Water District #2, Green River Valley Water District, City of Hodgenville, City of Bardstown, City of Campbellsville and Green-Taylor Water District. This should allow the water district ample supply of water and greatly increase the flexibility of the water district.

The LCWD takes great pride in its ability to supply quality water to its customers and is continually trying to extend its service to rural areas and provide safe potable water to the residents.

**III. The Proposed Project**

The LCWD proposes to extend water services to rural areas of Larue County in need of safe, potable water. The proposed water project will serve approximately 50 of 77 potential customers along the roads listed in Table 1 below (See Appendix B Project maps). A general breakdown of the project by road is also shown in Table 1. The proposed project will require approximately 13 miles of water line ranging in size from 3-inch to 6-inch diameter.

**IV. Cost Summary**

**TABLE 1 - BREAKDOWN OF PROJECT BY ROADS**

<b>Road Name</b>	<b>Estimated Construction Cost, \$</b>	<b>Water Line Length Feet</b>	<b>Potential Customers</b>	<b>Line Size, Inches</b>
Raine Road	18,000	1,700	1	4
Stevens Road	17,000	2,000	2	3
Rodney Howell Farm	39,000	6,000	4	4
Maxine Road Tie-In	19,000	1,800	1	6
KY. 222 (Spratt Road)	27,000	3,500	3	4
Hedgespesh Lane	92,000	12,500	9	4
North Otter Creek Road	52,000	7,200	5	4
Atilla Road Connection	50,000	7,000	5	6
Leonard Hall Road	59,000	6,500	5	6
N. Spalding Road	57,000	6,300	5	4
Wells Road	19,000	1,900	2	3
Buffalo Tie-In	51,000	5,600	4	6
Herbert Howell Connection	36,000	3,800	3	6
Lincoln Trail Road	14,000	1,200	1	3
Water Storage Tank #1	225,000	N/A	N/A	N/A
Water Storage Tank #2	225,000	N/A	N/A	N/A
<b>TOTALS</b>	<b>1,000,000</b>	<b>67,000</b>	<b>50</b>	

**TABLE 2 - LARUE COUNTY WATER DISTRICT #1  
 2008 WATER LINE EXTENSIONS  
 ESTIMATED CONSTRUCTION COST**

<b>NO.</b>	<b>ITEM</b>	<b>QUANTITY</b>	<b>UNIT</b>	<b>UNIT PRICE</b>	<b>TOTAL</b>
1	6" PVC Water Line	24,700	LF	\$6.00	\$148,200
2	4" PVC Water Line	37,200	LF	\$4.50	\$167,400
3	3" PVC Water Line	5,100	LF	\$4.00	\$20,400
4	Steel Casing, Bore & Jack	600	LF	\$90.00	\$54,000
5	6" Gate Valve	7	EA	\$700.00	\$4,900
6	4" Gate Valve	7	EA	\$650.00	\$4,550
7	3" Gate Valve	3	EA	\$450.00	\$1,350
8	Flush Hydrant	8	EA	\$2,700.00	\$21,600
9	4" Blow Off Assembly	6	EA	\$750.00	\$4,500
10	3" Blow Off Assembly	3	EA	\$700.00	\$2,100
11	Creek Crossing	650	LF	\$80.00	\$52,000
12	Meter Setting	50	EA	\$700.00	\$35,000
13	Connection	17	EA	\$2,000.00	\$34,000
14	100,000 Gallon Water Storage Tank #1	1	EA	\$225,000.00	\$225,000
15	100,000 Gallon Water Storage Tank #2	1	EA	\$225,000.00	\$225,000
<b>TOTAL</b>					<b>\$1,000,000</b>

**TABLE 3 - ESTIMATED PROJECT COST**

Construction Cost	\$1,000,000
Contingencies	100,000
Engineering	100,000
Inspection	50,000
Legal and Administrative	50,000
Miscellaneous (PE Report, Archeological, PSC, Environmental Ass.)	25,000
Land and/or Rights	50,000
<u>Interest During Construction</u>	<u>25,000</u>
<b>TOTAL ESTIMATED PROJECT COST</b>	<b>\$1,400,000</b>

**V. Funding**

**Proposed funding for this project is being made available as shown in Table 4.**

**TABLE 4 - FUNDING SOURCES**

KIA WX21123006	\$450,000
KIA WX21123007	\$300,000
KIA WX21123016	\$250,000
KIA WX21179013	\$150,000
<u>Rural Development Loan</u>	<u>\$250,000</u>
<b>TOTAL FUNDING</b>	<b>\$1,400,000</b>

**VI. Rate Analysis**

**A. Expenses**

**1. General**

There are normally three components to be considered in calculating a system's total expenses. They are Operation and Maintenance Costs (O&M), Annual Debt Service (payment for principal and interest on the bonded indebtedness) and Coverage (monthly "set aside" from revenues to insure payment of Debt Service in "lean" times).

**2. Operation and Maintenance Costs**

The Operation and Maintenance costs are the largest and most variable portion of the budget. With historical data, a very good estimate of these costs can be made. Table 5 shows: the O&M costs for 2008; the estimated O&M costs for the proposed project; and the Total O&M costs for the existing, current and proposed projects.

**TABLE 5 - PROPOSED O&M EXPENSES**

<b><u>Expense Description(3)</u></b>	<b><u>Existing System(1)</u></b>	<b><u>Proposed Project (2)</u></b>	<b><u>Total</u></b>
Water Purchased	\$337,000	\$3,500	\$340,500
Power Purchased	22,000	250	22,250
Meter Labor and Expense	214,000	2,500	216,500
Repairs and Maintenance	17,000	250	17,250
Administrative Expense	\$187,000	\$2,000	\$189,000
Depreciation	\$307,000	\$3,000	\$310,000
<b>TOTAL O&amp;M EXPENSES</b>	<b>\$1,084,000</b>	<b>\$11,500</b>	<b>\$1,095,500</b>

(1) The values listed are based on the 2008 fiscal year audit.

(2) Assumes 50 customers using 3300 gallons per month.

**3. Debt Service**

The annual debt service (payment for principal and interest) is established in the bond ordinance for each bond issue. The actual payment is dependent on the interest rate and term of the bond issue. The RD's bonds are for a term of 40 years with principal payments deferred for the first two years. Based on the 2008 audit, the Larue County Water District #1 will have an annual P&I payment of approximately \$218,645 in existing bonds for the year 2009.

The proposed project will have a bond issue of \$250,000 at an estimated interest rate of 4.5% interest. The annual P&I Payment is estimated to be \$13,500.

**4. Coverage**

Coverage is RD's requirement for establishing a monthly "set aside" to ensure payment of debt service should the utility have a "lean" year or some major unexpected cost. This money is a percent of the monthly revenues with a pre-established "cap." It is normally placed in a reserve account and is not available to the Utility for O&M Expenses without RD's approval.

The normal percent used by RD's for Coverage is 10% on each bond issue. That was the percent that was used in the following rate analysis for the LCWD.

**5. Summary of Expenses**

**TABLE 6 - SUMMARY OF EXPENSES**

<b>Service Area</b>	<b>Annual O&amp;M Expenses</b>	<b>Debt Service</b>	<b>Coverage At 10%</b>	<b>Total</b>
Existing System	\$1,084,000	\$218,645 <sup>(1)</sup>	\$21,865	\$1,324,510
Proposed Project	\$11,500	\$13,500	\$1,350	\$26,350
<b>TOTAL</b>	<b>\$1,095,500</b>	<b>\$232,145</b>	<b>\$23,215</b>	<b>\$1,350,860</b>

(1) Debt Service due in 2009 according to 2008 audit.



Therefore, the LCWD needs to collect a minimum of \$1,350,860 annually to break even. Any amount in excess of that figure is surplus and can be used to make additional capital improvements to the water system and/or make repairs to the existing system.

**B. Income Required**

**1. General**

Income for a utility comes from several sources: the sale of water; interest income on investments; fees received from disconnect/reconnect/late charges and surcharges. The latter is an attempt to extend service into new areas by letting those that receive the service pay a more proportionate share of the cost. It also is an attempt at not making the first customers in a utility continually pay for expansion for that system.

The LCWD has not previously used a surcharge and it is felt that a surcharge will not be required for the proposed project.

**2. Customers and Average Usage**

The customer count and usage were provided by the LCWD.

**TABLE 7 - SUMMARY OF CUSTOMER COUNT AND USAGE**

<u>Service Area</u>	<u>Number of Customers</u>	<u>Average Monthly Usage, Gallons</u>
Existing System	3300	3300
Proposed Project	50	3300

(1) Assumed same monthly usage since the socio-economic makeup of the proposed customers is equal to the existing customers.

**3. Estimated Income**

Based on the audited financial statements for the year ending 2008, operating income from water sales alone was \$1,140,976. Based on adding 50 new customers on the proposed project, at an average water usage rate of approximately \$23.27, the new customers should generate an additional \$13,962 in income by 2009 year end. Table 8 includes a summary of the estimated income

calculations from water sales alone. Please see the Actual Water Usage Analysis and Forecasts in Appendix C.

**TABLE 8 - ESTIMATED INCOME FROM WATER SALES ALONE**

<b>Service Area</b>	<b>Year End 2008</b>	<b>Year End<sup>(1)</sup> 2009</b>	<b>Year End<sup>(1)</sup> 2010</b>	<b>Projected<sup>(1)</sup> 2011</b>
Existing System	\$1,140,976	\$1,169,500	\$1,198,738	\$1,228,706
Proposed Project	----	\$13,962	\$14,311	\$14,669
<b>TOTAL ESTIMATED ANNUAL INCOME</b>				<b>\$1,183,462</b>

(1) Project income includes 2.5% growth in system per year.

**C. Summary of Rate Analysis**

**TABLE 9 - SUMMARY OF RATE ANALYSIS**

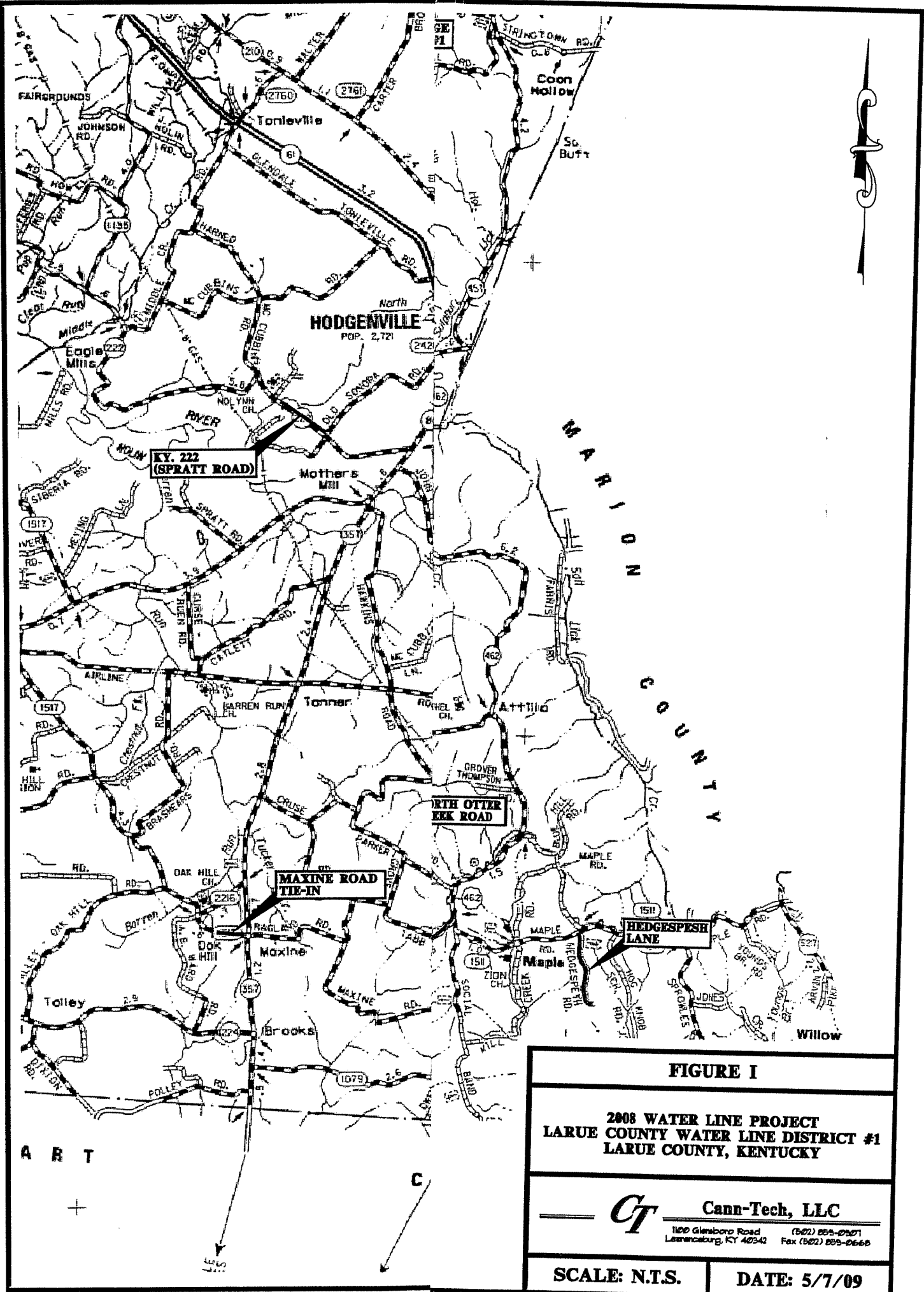
Estimated Annual Expenses for Entire System (Including Proposed Project)	\$1,350,860
Estimated Income for Entire System (Including Proposed Project)	\$1,183,462
Estimated Surplus	\$(-167,398)

**VII. Recommendation**

It is recommended, with a rate increase that the project is funded by a Rural Development Loan and Grant and a letter of conditions be issued as soon as possible. The rate increase will be described in detail in the Summary Addendum.

Based on the above calculations, proposed rate increase, along with the assumptions made, RD should allow the LCWD to construct the proposed project. It appears they can meet all current and proposed debts and expenses, and still have a surplus of funds.

**APPENDIX A**  
**PROJECTS MAPS**



**FIGURE I**

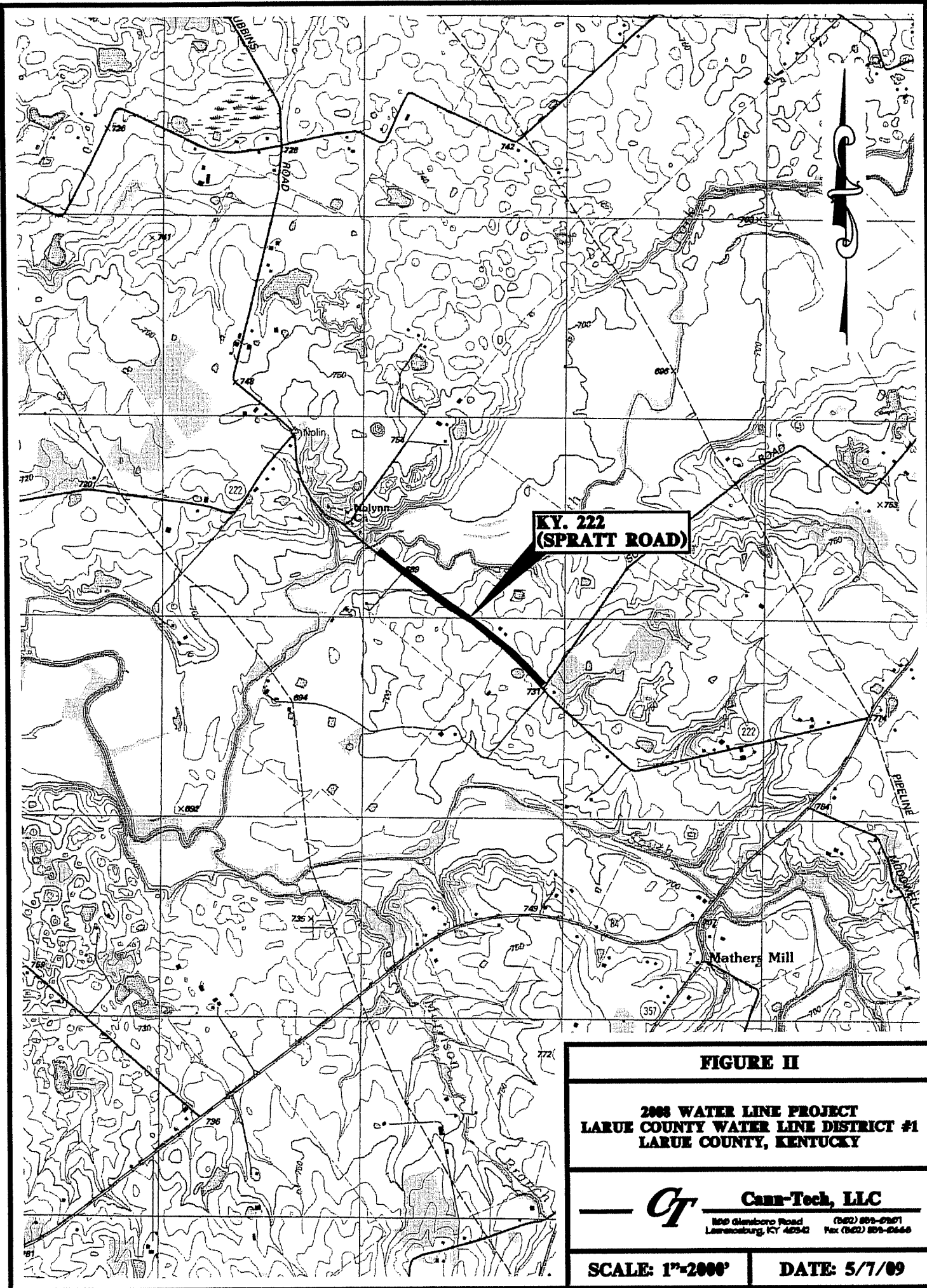
**2008 WATER LINE PROJECT  
LARUE COUNTY WATER LINE DISTRICT #1  
LARUE COUNTY, KENTUCKY**

**CT** **Cann-Tech, LLC**  
 1100 Glenboro Road (502) 885-0207  
 Lawrenceburg, KY 40342 Fax (502) 885-0668

**SCALE: N.T.S.**

**DATE: 5/7/09**

ARU UNT TER RIC VD 2 Vate: s4-1 .091E) TS-4 9.dwg, /200' :44 / ener 50BV DL



**FIGURE II**

**2008 WATER LINE PROJECT  
LARUE COUNTY WATER LINE DISTRICT #1  
LARUE COUNTY, KENTUCKY**



**Carr-Tech, LLC**

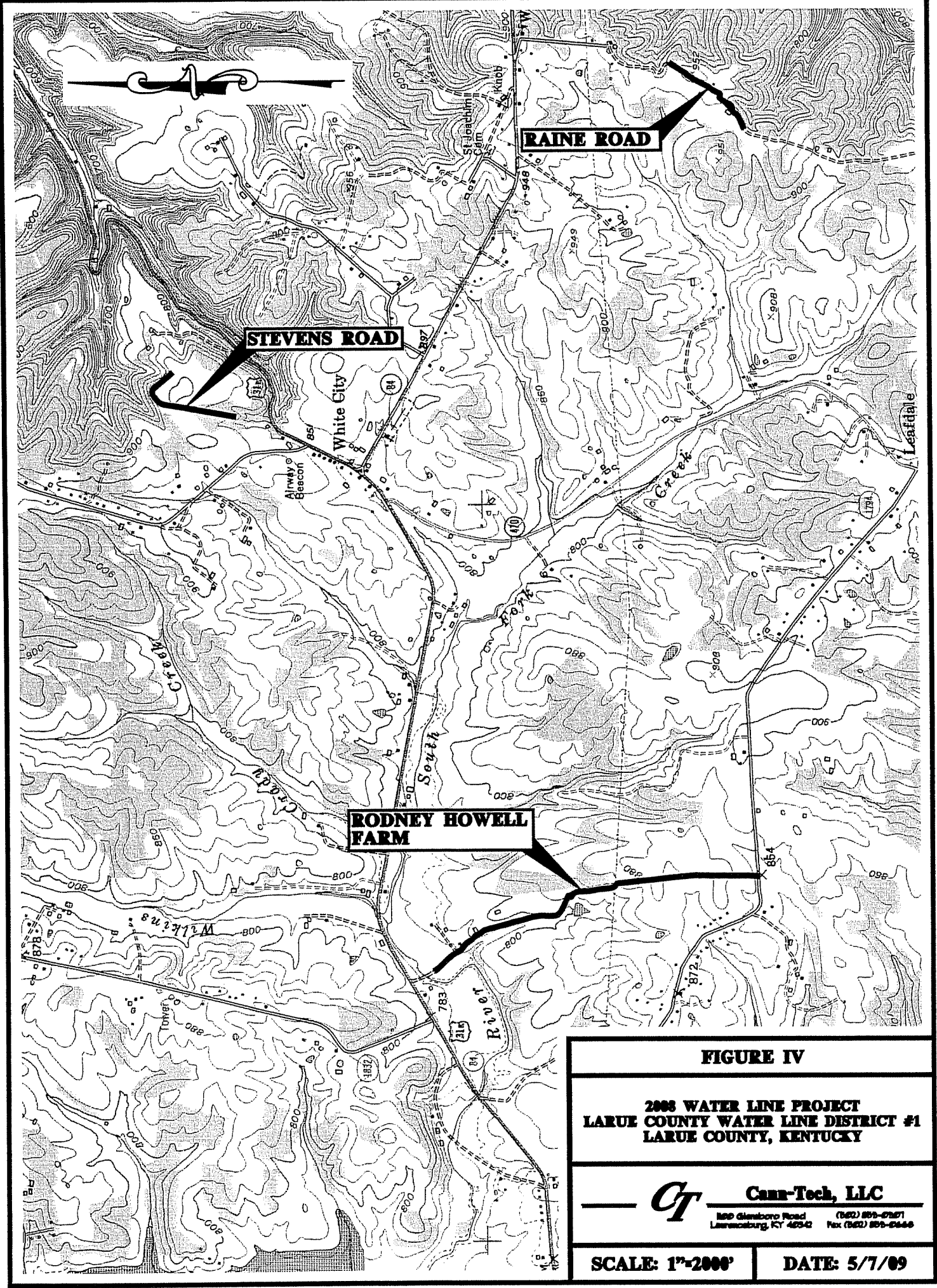
100 Glenboro Road (502) 895-0701  
Laurensburg, KY 40342 Fax: (502) 895-0448


**SCALE: 1"=2000'**

**DATE: 5/7/09**



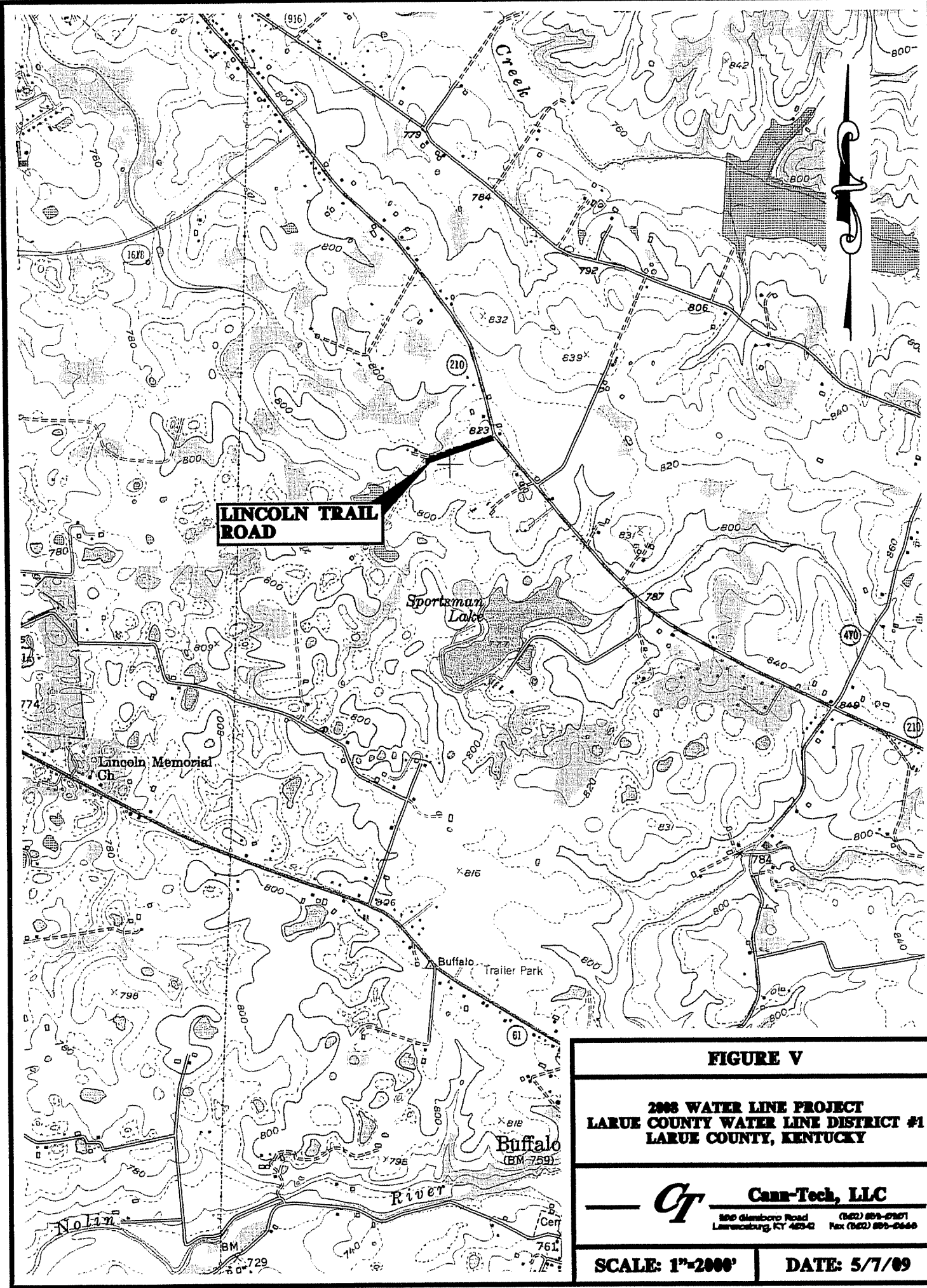
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<b>FIGURE IV</b>	
<b>2008 WATER LINE PROJECT LARUE COUNTY WATER LINE DISTRICT #1 LARUE COUNTY, KENTUCKY</b>	
	<b>Cann-Tech, LLC</b>
<small>100 Glenboro Road Lawrenceburg, KY 40342</small>	<small>(502) 895-0707 Fax (502) 895-0660</small>
<b>SCALE: 1"=2000'</b>	<b>DATE: 5/7/09</b>



ARUI JNT TER RIC VD2 Water s14-1 91EX TS-4 3.dwg, 2005 :59 A eneri 30BW 2L



**FIGURE V**

**2008 WATER LINE PROJECT  
LARUE COUNTY WATER LINE DISTRICT #1  
LARUE COUNTY, KENTUCKY**



**Carr-Tech, LLC**

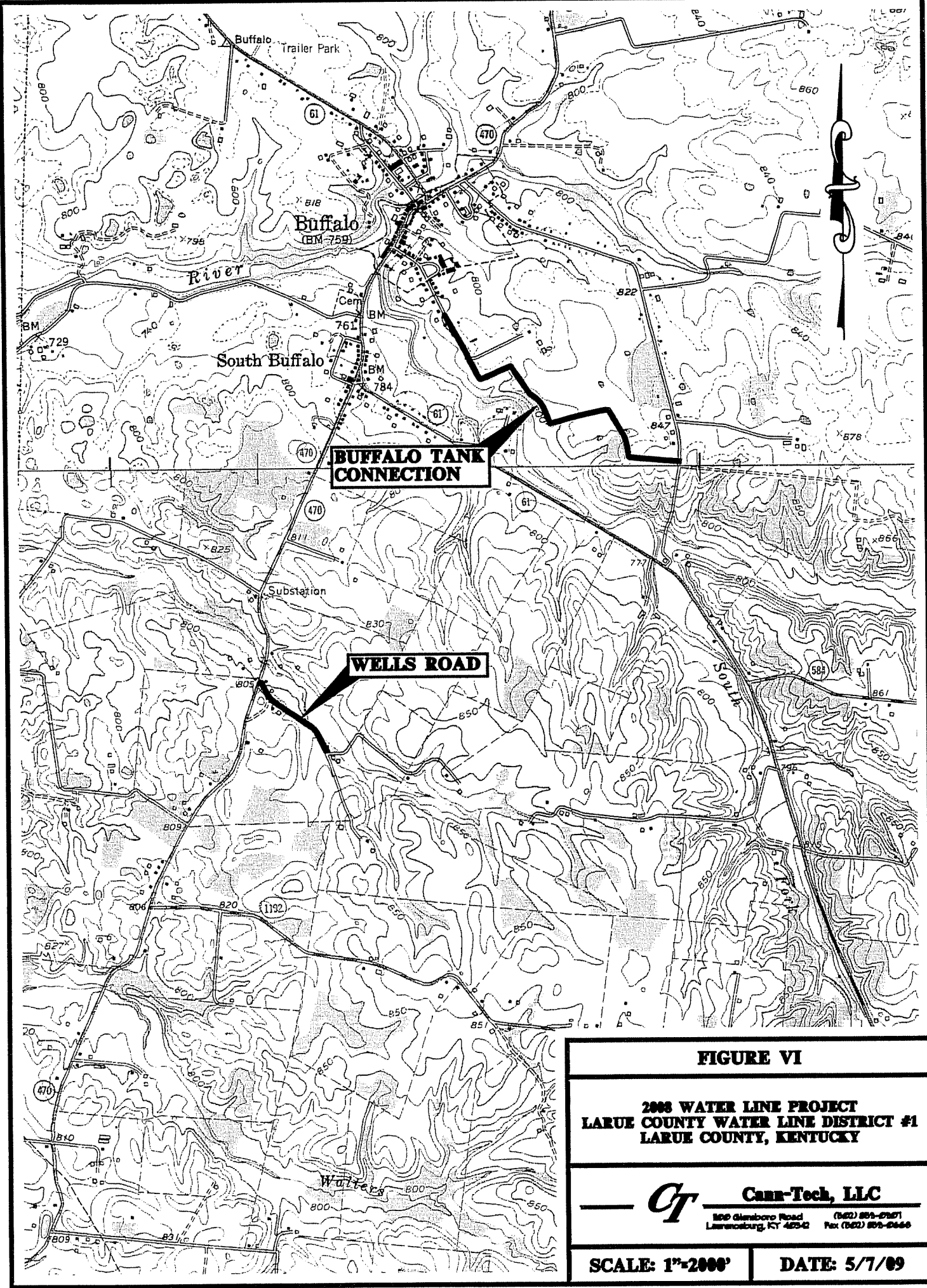
1826 Glenboro Road (602) 889-0707  
Lawrenceburg, KY 40342 Fax (602) 889-0446


**SCALE: 1"=2000'**

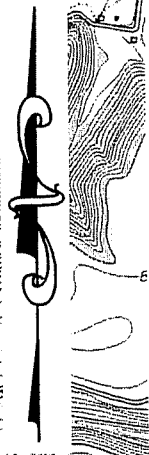
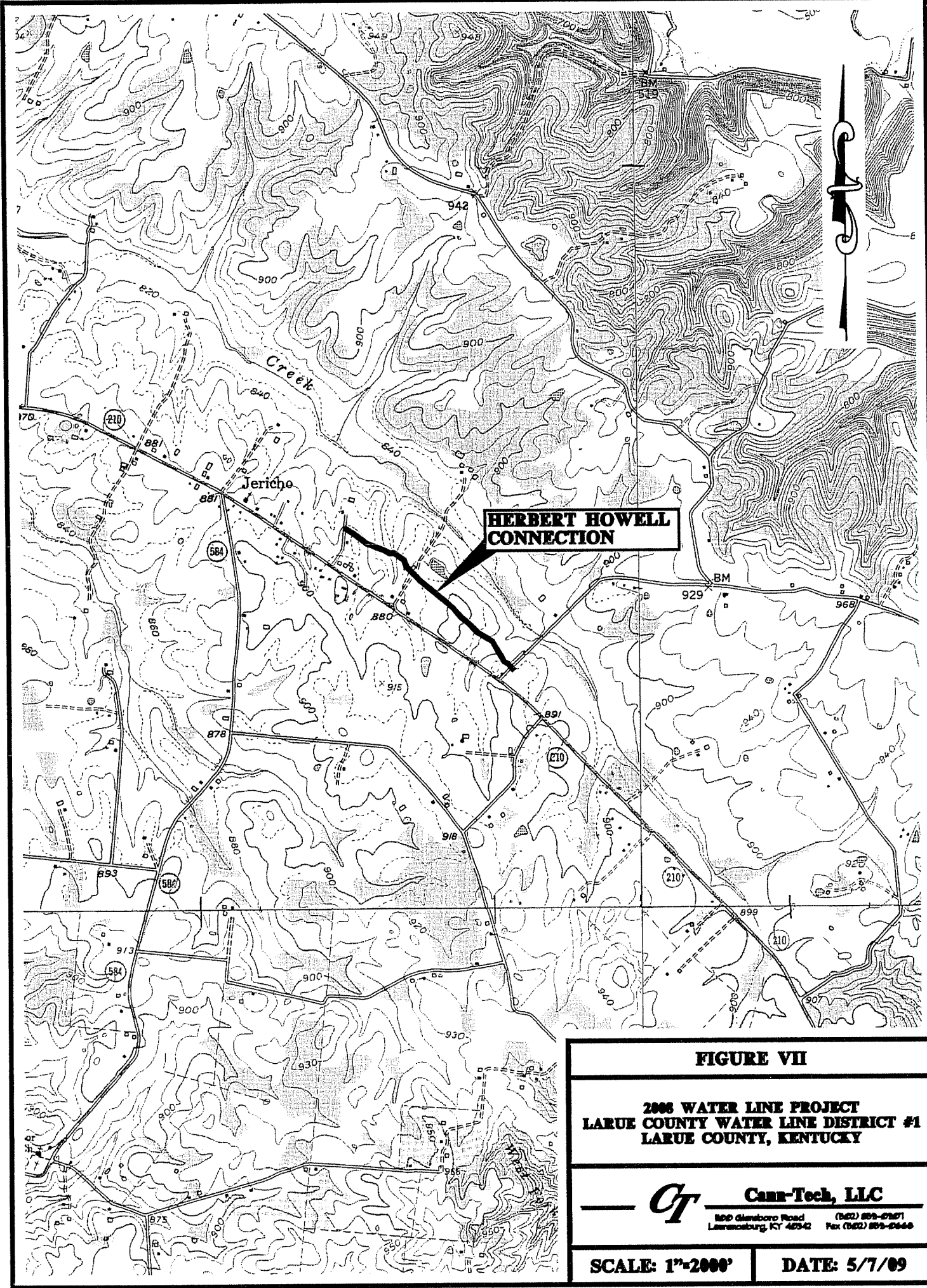
**DATE: 5/7/09**



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<b>FIGURE VI</b>	
<b>2008 WATER LINE PROJECT LARUE COUNTY WATER LINE DISTRICT #1 LARUE COUNTY, KENTUCKY</b>	
 <b>Carr-Tech, LLC</b> <small>1500 Glendale Road Lawrenceburg, KY 40342</small> <small>(502) 825-0707 Fax (502) 825-0446</small>	
<b>SCALE: 1"=2000'</b>	<b>DATE: 5/7/09</b>



**HERBERT HOWELL  
CONNECTION**

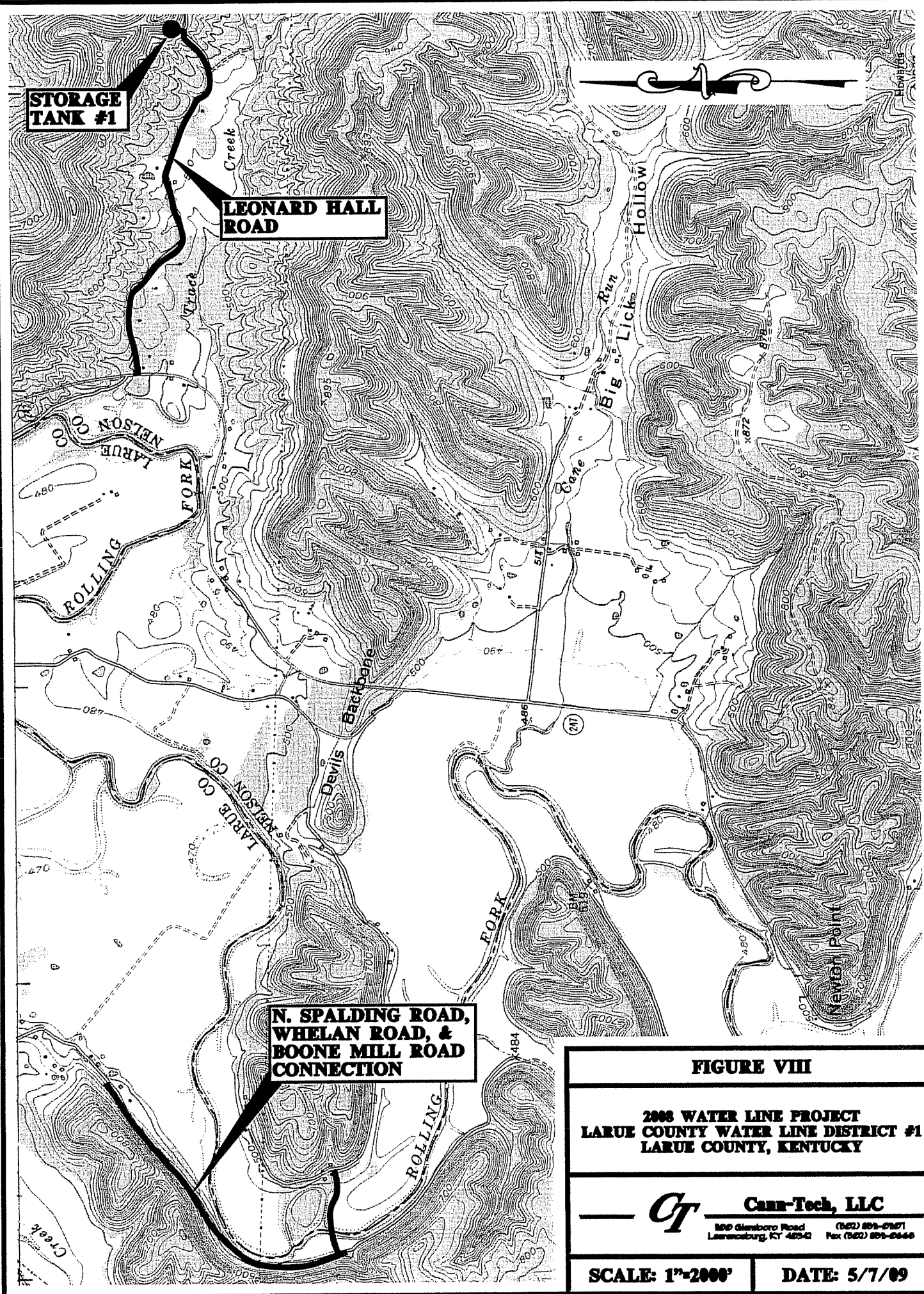
**FIGURE VII**


**2008 WATER LINE PROJECT  
LARUE COUNTY WATER LINE DISTRICT #1  
LARUE COUNTY, KENTUCKY**

**CT Carr-Tech, LLC**  
 160 Glensboro Road (602) 893-2767  
 Lawrenceburg, KY 40342 Fax (602) 893-2666

**SCALE: 1"=2000'**

**DATE: 5/7/09**



<b>FIGURE VIII</b>	
<b>2008 WATER LINE PROJECT LARUE COUNTY WATER LINE DISTRICT #1 LARUE COUNTY, KENTUCKY</b>	
	<b>Carr-Tech, LLC</b> <small>150 Glenboro Road Lawrenceburg, KY 40342</small>
<b>SCALE: 1"=2000'</b>	<b>DATE: 5/7/09</b>

(502) 899-0207  
Fax (502) 899-0666





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Cann-Tech, L.L.C.



Engineers

Planners

Managers

**HEDGESPESH LANE**

**FIGURE X**

**2008 WATER LINE PROJECT  
LARUE COUNTY WATER LINE DISTRICT #1  
LARUE COUNTY, KENTUCKY**



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Park View Center  
Lawrenceburg, KY 40342  
Phone (502) 859-0907 • Fax (502) 859-0668  
Email: waterboy@ktn.net

**SCALE: 1"=2000'**

**DATE: 5/7/09**