

**PRELIMINARY ENGINEERING REPORT
FOR THE
BRONSTON WATER ASSOCIATION
2019 WATER LINE REPLACEMENTS & IMPROVEMENTS**

MARCH 2019

PRELIMINARY ENGINEERING REPORT

BRONSTON WATER ASSOCIATION 2019 WATER LINE REPLACEMENTS & IMPROVEMENTS PULASKI COUNTY, KENTUCKY

I. GENERAL

This Preliminary Engineering Report is intended to analyze the proposed water system replacements and improvements that are being planned by the Bronston Water Association to serve residential customers in Pulaski and Wayne Counties with potable drinking water. The project includes the replacement of approximately 9,000 LF of existing 3-inch water line with new 6-inch PVC SDR 17 water line along Frazier Chapel Road. Project also consists of the replacement of approximately 10,650 LF of existing 3-inch water line with new 3-inch PVC SDR 21 water line along Kentucky Highway 1568/Strawberry Road, Taylor Cemetery Road, Hutchinson Lane, Bobbi Drive, and Judy Drive. Frazier Chapel Road, Kentucky Highway 1568/Strawberry Road, Taylor Cemetery Road, and Hutchinson Lane are all located in Wayne County, Kentucky. Bobbi Drive and Judy Drive are located in Pulaski County, Kentucky. In addition, the project consists of reconnecting the existing 500,000 gallon glass lined tank (John Gover Tank) to the existing system by installing a valve vault and 250 LF of 8-inch ductile iron pipe and accessories.

II. PROJECT PLANNING AREA

The proposed water line replacements and improvements will take place along the Frazier Chapel Road, Kentucky Highway 1568/Strawberry Road, Taylor Cemetery Road, Hutchinson Lane, Bobbi Drive, and Judy Drive. The majority of the project involves the replacement of approximately 9,000 LF of undersized water line and 10,650 LF of deteriorating water lines. The tank reconnection will take place at the existing tank site located on John Gover Lane.

It is not anticipated that a significant growth pattern will emerge as a result of the implementation of a water line replacement but rather that the standard of living for those residents will be greatly improved. It is anticipated that 83 homes will be immediately affected by the water line replacement and improvements project. The proposed service area is shown on the attached maps.

III. EXISTING FACILITIES

The Bronston Water Association owns and operates the water distribution system that serves nearly the entire rural portion of southwest Pulaski County and portions of northeast Wayne County. The Association purchases all water for resale from the City of Monticello which has more than sufficient water treatment capacity to serve the proposed improvement. A contract amendment has been agreed upon to allow for the purchase of unlimited water.

IV. NEED FOR THE PROJECT

The replacement of the existing water lines that are deteriorating and/or undersized with new upgraded water lines will help distribute ample water to the areas which currently are experiencing continuous water leaks. These leaks are difficult to find at times which requires a number of days to find leading to low water pressure, storage tanks draining, and taste problems.

V. ALTERNATIVES CONSIDERED

Based on the need for potable water due to the continued demand for service and also the growth within the project area, the Bronston Water Association must take the necessary steps to continue to provide service as required by the Kentucky Division of Water and the Kentucky Public Service Commission. The final project scope determination was centered on meeting existing and future customer demands without significantly burdening the Association's ability to meet its current and future financial obligations.

Considering the unsuitable condition of the existing water lines scheduled to be replaced through this project, there are no other technically feasible alternatives to correct the situation. If this association could take no action, this would however result in costly regular repairs and an unsuitable conditions for the existing residents being served by the water lines.

VI. PROPOSED PROJECT

The project includes the replacement of approximately 9,000 LF of existing 3-inch water line with new 6-inch PVC SDR 17 water line along Frazier Chapel Road. Project also consists of the replacement of approximately 10,650 LF of existing 3-inch water line with new 3-inch PVC SDR 21 water line along Kentucky Highway 1568/Strawberry Road, Taylor Cemetery Road, Hutchinson Lane, Bobbi Drive, and Judy Drive. John Gover Tank reconnection consists of 250 LF of ductile iron pipe, accessories, and one valve vault.

The project cost has been estimated to be \$793,000 and it is to be financed by a grant from USDA Rural Development for \$238,000 and a loan from USDA Rural Development for \$555,000.

VII. CONCLUSIONS AND RECOMMENDATIONS

Based on the desperate need for the residents in these communities to have a potable water supply, it is recommended that the Bronston Water Association take the steps necessary to develop the potable water system so that this unhealthy situation can be resolved. The Bronston Water Association is the only major supplier of potable water in and around these areas and their system is situated such that these improvements as proposed can be made without adversely affecting service to their existing customers.

**PRELIMINARY COST ESTIMATE
BRONSTON WATER ASSOCIATION
PULASKI & WAYNE COUNTIES, KENTUCKY
2019 WATER LINE REPLACEMENTS & IMPROVEMENTS
NOVEMBER 2020**

PROPOSED PROJECT COSTS

DEVELOPMENT	\$591,270.00
CONTINGENCY	59,730.00
ENGINEERING DESIGN	58,000.00
CONSTRUCTION INSPECTION	41,000.00
PRELIMINARY ENGINEERING REPORT	10,000.00
ENVIRONMENTAL ASSESSMENT	10,000.00
LEGAL & ADMINISTRATION	13,000.00
INTEREST	<u>10,000.00</u>
TOTAL PROJECT COSTS	\$793,000.00

PROJECT FUNDING

USDA RURAL DEVELOPMENT LOAN (70%)	\$555,000.00
USDA RURAL DEVELOPMENT GRANT (30%)	<u>238,000.00</u>
TOTAL PROJECT FUNDING	\$793,000.00

**PRELIMINARY COST ESTIMATE
BRONSTON WATER ASSOCIATION
FRAZIER CHAPEL ROAD WATER LINE REPLACEMENT
NOVEMBER 2020**

ITEM NO.	DESCRIPTION	QUANTITY	UNIT COST	TOTAL COST
1	6-Inch PVC SDR 17 Water Line	9,000 LF	\$20.00	\$180,000.00
2	Bore & Case for 6-Inch WL	150 LF	150.00	22,500.00
3	Free Bore for 6-Inch WL	600 LF	25.00	15,000.00
4	6-Inch Gate Valve	3 EA	700.00	2,100.00
5	3-Inch Gate Valve	1 EA	600.00	600.00
6	2-Way Flush Hydrant	2 EA	3,900.00	7,800.00
7	Connection	2 EA	2,500.00	5,000.00
8	Meter Reconnection	40 EA	300.00	12,000.00
9	3/4-Inch Service Tubing	1,000 LF	8.00	8,000.00
Subtotal				\$253,000.00

**PRELIMINARY COST ESTIMATE
BRONSTON WATER ASSOCIATION
KY 1568/STRAWBERRY ROAD WATER LINE REPLACEMENT
NOVEMBER 2020**

ITEM NO.	DESCRIPTION	QUANTITY	UNIT COST	TOTAL COST
1	3-Inch PVC SDR 21 Water Line	3,900 LF	\$15.00	\$58,500.00
2	Bore & Case for 3-Inch WL	100 LF	150.00	15,000.00
3	Creek Crossing for 3-Inch WL	30 LF	100.00	3,000.00
4	3-Inch Gate Valve	2 EA	600.00	1,200.00
5	2-Way Flush Hydrant	1 EA	3,900.00	3,900.00
6	Connection	2 EA	2,500.00	5,000.00
7	Meter Reconnection	4 EA	300.00	1,200.00
8	3/4-Inch Service Tubing	100 LF	8.00	800.00
Subtotal				\$88,600.00

**PRELIMINARY COST ESTIMATE
BRONSTON WATER ASSOCIATION
TAYLOR CEMETERY ROAD WATER LINE REPLACEMENT
NOVEMBER 2020**

ITEM NO.	DESCRIPTION	QUANTITY	UNIT COST	TOTAL COST
1	3-Inch PVC SDR 21 Water Line	1,250 LF	\$15.00	\$18,750.00
2	Bore & Case for 3-Inch WL	50 LF	150.00	7,500.00
3	3-Inch Gate Valve	1 EA	600.00	600.00
4	2-Way Flush Hydrant	1 EA	3,900.00	3,900.00
5	Meter Reconnection	6 EA	300.00	1,800.00
6	3/4-Inch Service Tubing	60 LF	8.00	480.00
Subtotal				\$33,030.00

**PRELIMINARY COST ESTIMATE
BRONSTON WATER ASSOCIATION
HUTCHINSON LANE WATER LINE REPLACEMENT
NOVEMBER 2020**

ITEM NO.	DESCRIPTION	QUANTITY	UNIT COST	TOTAL COST
1	3-Inch PVC SDR 21 Water Line	3,700 LF	\$15.00	\$55,500.00
2	3-Inch Gate Valve	1 EA	600.00	600.00
3	2-Way Flush Hydrant	1 EA	3,900.00	3,900.00
4	Connection	1 EA	2,500.00	2,500.00
5	Meter Reconnection	3 EA	300.00	900.00
6	3/4-Inch Service Tubing	30 LF	8.00	240.00
Subtotal				\$63,640.00

**PRELIMINARY COST ESTIMATE
BRONSTON WATER ASSOCIATION
BOBBI DRIVE WATER LINE REPLACEMENT
NOVEMBER 2020**

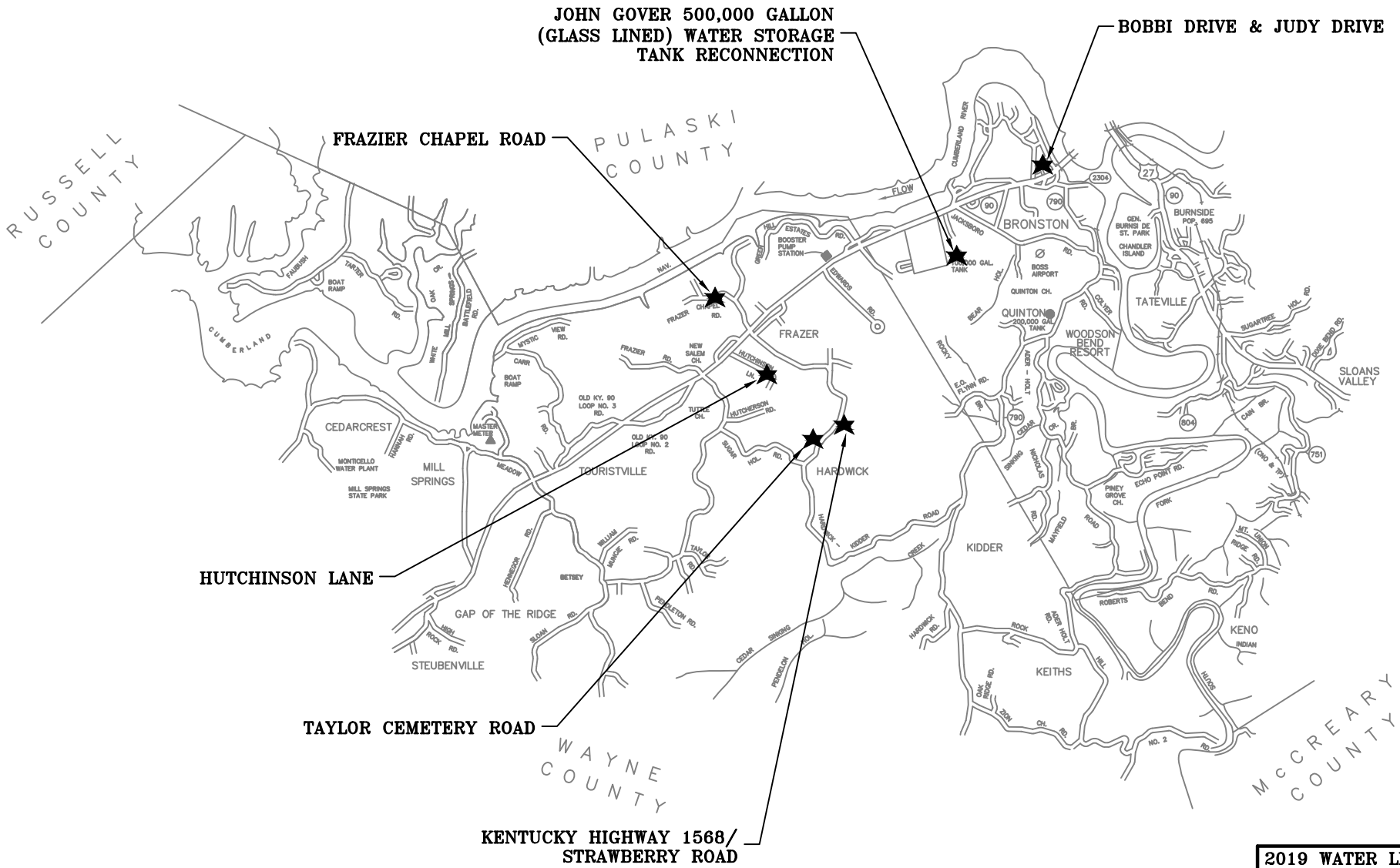
ITEM NO.	DESCRIPTION	QUANTITY	UNIT COST	TOTAL COST
1	3-Inch PVC SDR 21 Water Line	1,250 LF	\$15.00	\$18,750.00
2	3-Inch Gate Valve	2 EA	600.00	1,200.00
3	2-Way Flush Hydrant	1 EA	3,900.00	3,900.00
4	Connection	2 EA	2,500.00	5,000.00
5	Meter Reconnection	17 EA	300.00	5,100.00
6	3/4-Inch Service Tubing	450 LF	8.00	3,600.00
Subtotal				\$37,550.00

**PRELIMINARY COST ESTIMATE
BRONSTON WATER ASSOCIATION
JUDY DRIVE WATER LINE REPLACEMENT
NOVEMBER 2020**

ITEM NO.	DESCRIPTION	QUANTITY	UNIT COST	TOTAL COST
1	3-Inch PVC SDR 21 Water Line	550 LF	\$15.00	\$8,250.00
2	3-Inch Gate Valve	1 EA	600.00	600.00
3	2-Way Flush Hydrant	1 EA	3,900.00	3,900.00
4	Connection	1 EA	2,500.00	2,500.00
5	Meter Reconnection	13 EA	300.00	3,900.00
6	3/4-Inch Service Tubing	350 LF	8.00	2,800.00
Subtotal				\$21,950.00

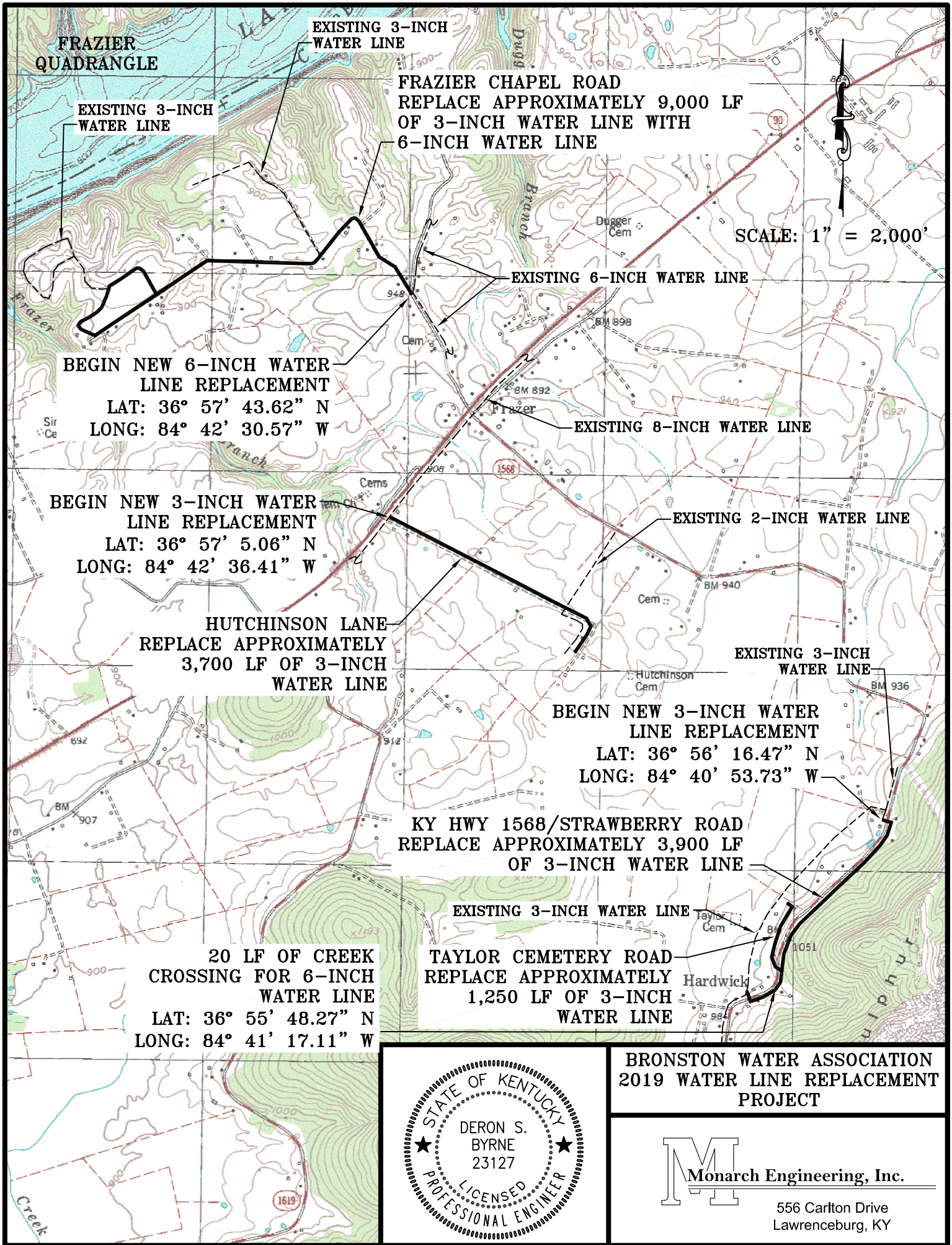
**PRELIMINARY COST ESTIMATE
 BRONSTON WATER ASSOCIATION
 500,000 GLASS LINED WATER STORAGE TANK RECONNECTION
 NOVEMBER 2020**

ITEM NO.	DESCRIPTION	QUANTITY	UNIT COST	TOTAL COST
1	8-Inch CL350 Ductile Iron Water Line	250 LF	\$100.00	\$25,000.00
2	8-Inch Gate Valve	3 EA	2,500.00	7,500.00
3	Connection/Direct Connections	6 EA	3,500.00	21,000.00
4	Valve Vault	1 LS	40,000.00	40,000.00
Subtotal				\$93,500.00



**2019 WATER LINE REPLACEMENTS
& IMPROVEMENTS
BRONSTON WATER ASSOCIATION**

M
Monarch Engineering, Inc.
556 Carlton Drive
Lawrenceburg, KY



FRAZIER QUADRANGLE

EXISTING 3-INCH WATER LINE

EXISTING 3-INCH WATER LINE

**FRAZIER CHAPEL ROAD
REPLACE APPROXIMATELY 9,000 LF
OF 3-INCH WATER LINE WITH
6-INCH WATER LINE**

SCALE: 1" = 2,000'

EXISTING 6-INCH WATER LINE

**BEGIN NEW 6-INCH WATER
LINE REPLACEMENT**

LAT: 36° 57' 43.62" N

LONG: 84° 42' 30.57" W

EXISTING 8-INCH WATER LINE

**BEGIN NEW 3-INCH WATER
LINE REPLACEMENT**

LAT: 36° 57' 5.06" N

LONG: 84° 42' 36.41" W

EXISTING 2-INCH WATER LINE

**HUTCHINSON LANE
REPLACE APPROXIMATELY
3,700 LF OF 3-INCH
WATER LINE**

**EXISTING 3-INCH
WATER LINE**

**BEGIN NEW 3-INCH WATER
LINE REPLACEMENT**

LAT: 36° 56' 16.47" N

LONG: 84° 40' 53.73" W

**KY HWY 1568/STRAWBERRY ROAD
REPLACE APPROXIMATELY 3,900 LF
OF 3-INCH WATER LINE**

EXISTING 3-INCH WATER LINE

**20 LF OF CREEK
CROSSING FOR 6-INCH
WATER LINE**

LAT: 36° 55' 48.27" N

LONG: 84° 41' 17.11" W

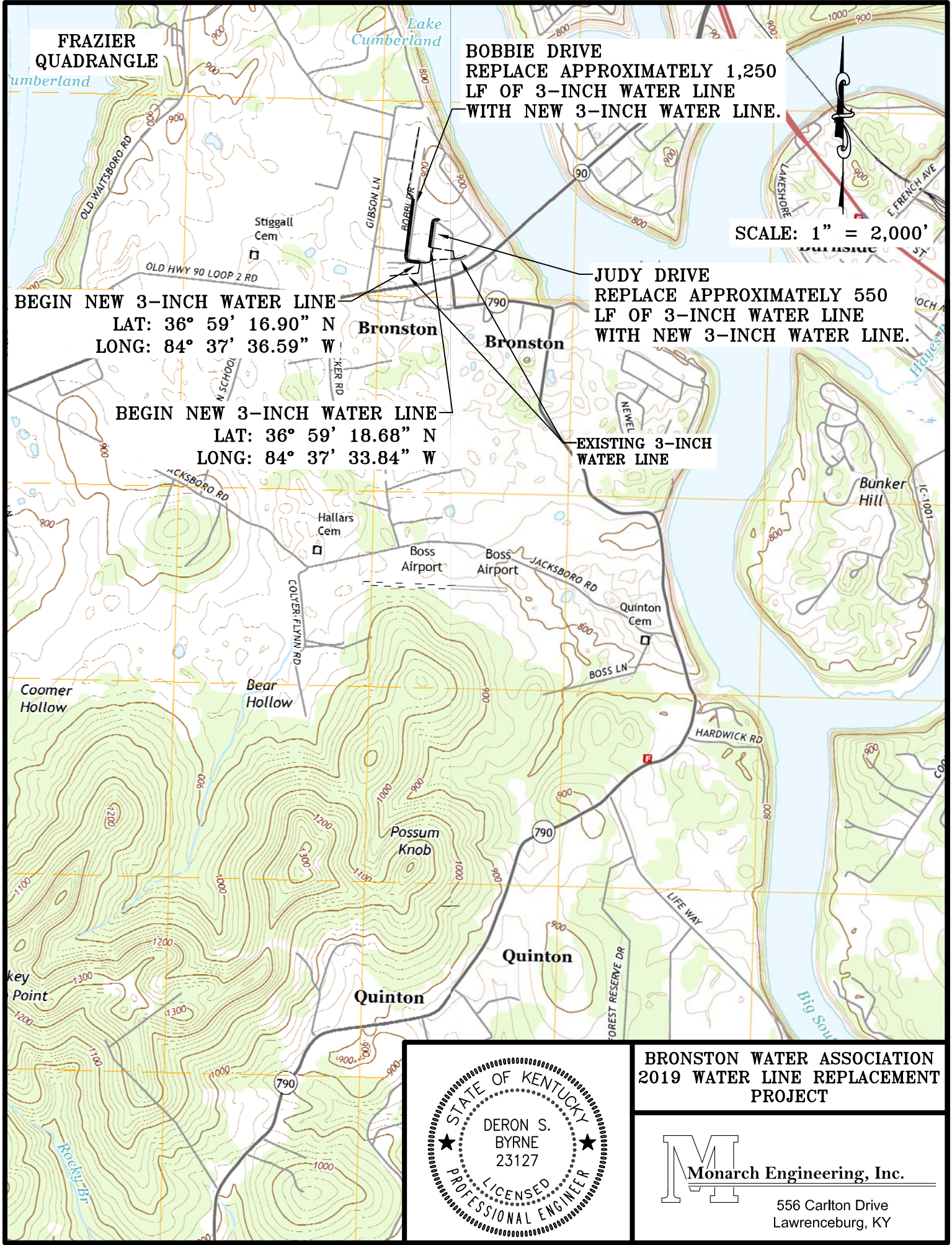
**TAYLOR CEMETERY ROAD
REPLACE APPROXIMATELY
1,250 LF OF 3-INCH
WATER LINE**



**BRONSTON WATER ASSOCIATION
2019 WATER LINE REPLACEMENT
PROJECT**

Monarch Engineering, Inc.

556 Carlton Drive
Lawrenceburg, KY



FRAZIER QUADRANGLE

**BOBBIE DRIVE
REPLACE APPROXIMATELY 1,250
LF OF 3-INCH WATER LINE
WITH NEW 3-INCH WATER LINE.**

SCALE: 1" = 2,000'

BEGIN NEW 3-INCH WATER LINE

**LAT: 36° 59' 16.90" N
LONG: 84° 37' 36.59" W**

Bronston

**JUDY DRIVE
REPLACE APPROXIMATELY 550
LF OF 3-INCH WATER LINE
WITH NEW 3-INCH WATER LINE.**

BEGIN NEW 3-INCH WATER LINE

**LAT: 36° 59' 18.68" N
LONG: 84° 37' 33.84" W**

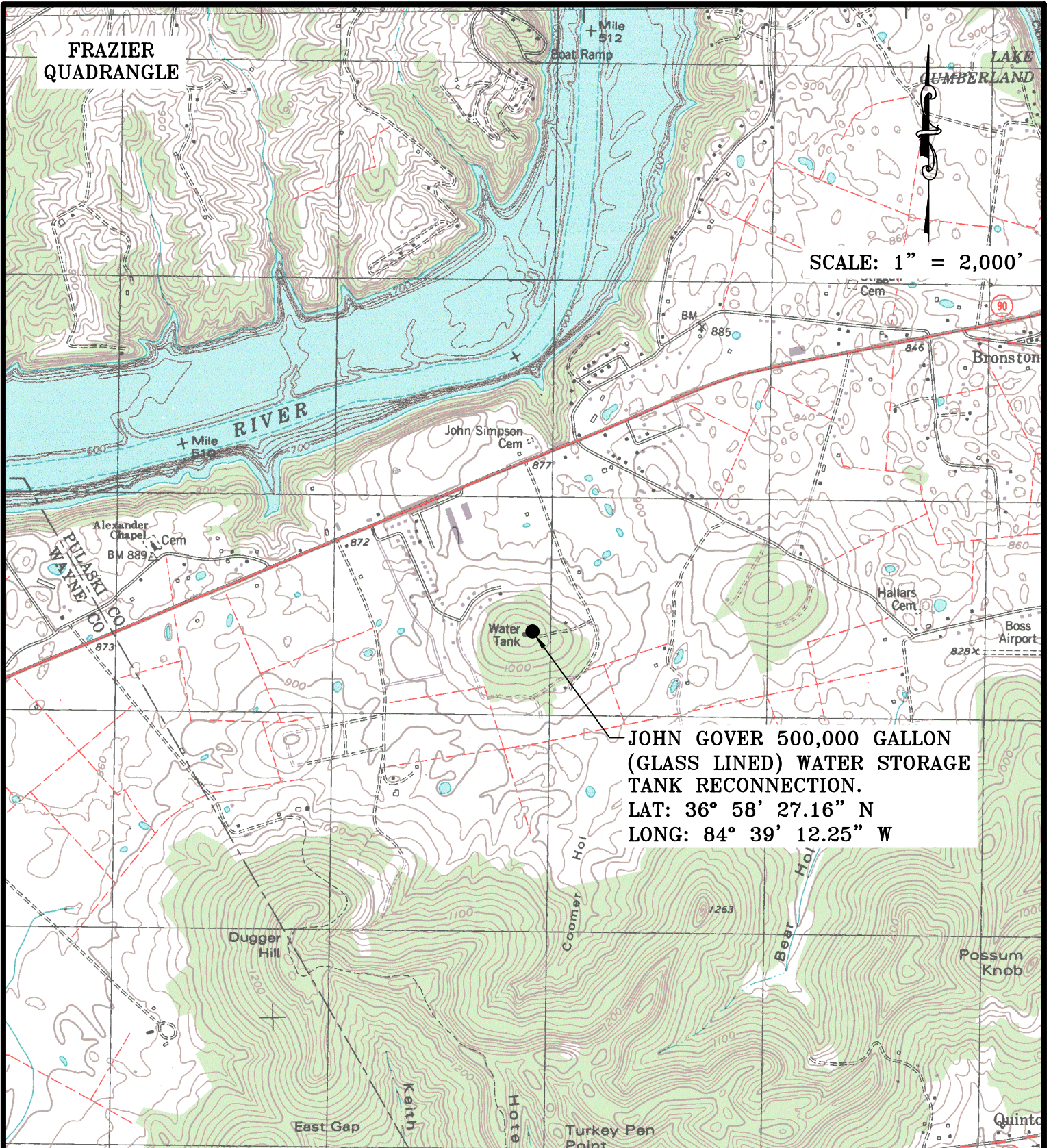
**EXISTING 3-INCH
WATER LINE**

**BRONSTON WATER ASSOCIATION
2019 WATER LINE REPLACEMENT
PROJECT**



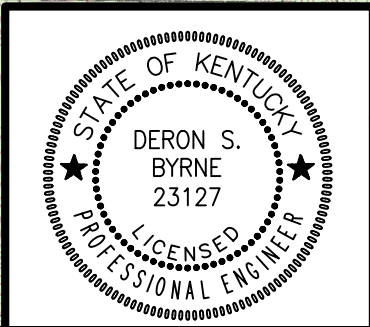
Monarch Engineering, Inc.
556 Carlton Drive
Lawrenceburg, KY

**FRAZIER
QUADRANGLE**



SCALE: 1" = 2,000'

**JOHN GOVER 500,000 GALLON
(GLASS LINED) WATER STORAGE
TANK RECONNECTION.
LAT: 36° 58' 27.16" N
LONG: 84° 39' 12.25" W**



**JOHN GOVER 500,000 GALLON (GLASS LINED)
WATER STORAGE TANK RECONNECTION
BRONSTON, KENTUCKY**



Monarch Engineering, Inc.

556 Carlton Drive
Lawrenceburg, KY