

PRELIMINARY ENGINEERING REPORT
PHASE I WATER LINE REPLACEMENT PROJECT
WESTERN FLEMING WATER DISTRICT
FLEMING COUNTY, KENTUCKY

June 2016

Prepared By:



3 HMB Circle
Frankfort, Kentucky 40601
(502) 695-9800
(502) 695-9810 Fax

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I INTRODUCTION

This Preliminary Engineering Report will examine the proposed Phase I – AC Water Line Replacement Project for the Western Fleming Water District (WFWD). The District is currently pursuing funding to replace approximately 43,000 l.f. of various size asbestos cement (A.C.) water lines along several roads in Western Fleming County. This Project will also upgrade the 6-inch A.C. water line to 8-inch PVC water line to provide better service to existing customers and future customers. It is estimated that the proposed project will have a construction cost of \$1,638,000 and a project cost of \$2,080,000.

II DESCRIPTION OF WATER DISTRICT

Western Fleming Water District was created in 1960. The Board of Commissioners is made up of 5 members. Each of the commissioners is nominated by the Judge Executive of Fleming County and must be approved by the Fiscal Court. These Commissioners transact and administer all business of the District at its office located at 1500 Ewing Road, Ewing, Kentucky. The day to day work is handled by the office manager, the maintenance supervisor or the WTP supervisor.

III EXISTING WATER SYSTEM

WFWD provides safe potable water service to approximately 1,457 customers and provides whole sale water to the Buffalo Trail Water Association and the Nicholas County Water District. WFWD supplies Buffalo Trail Water Association with approximately 11.2 million gallons per month and Nicholas County Water District with approximately 3.2 million gallons per month. WFWD's water treatment plant is located on the Licking River and has a capacity of 3.0 mgd. Currently, they produce approximately 950,000 gpd. WFWD also purchases approximately 3.1 million gallons per month from the Greater Fleming County Regional Water Commission.

WFWD's system is comprised of approximately 120 miles of water line ranging in size from 2-inch to 12-inch, one (1) booster pump station and four (4) water storage tanks with a combined capacity of 950,000 gallons.

IV NEED FOR PROJECT

During the early years of the WFWD, a majority of the water lines constructed were made of asbestos cement (A.C.). Over time, these water lines have become more brittle and susceptible to leaking and breaks creating health risks to not only residential and commercial customers, but also to students at the Ewing Elementary School Fleming County High School. The A.C. water lines are also considered a hazardous material that poses potential health hazards to the maintenance crew when repairing a leak (See Appendix A – DOW Letter).

The excessive water loss and additional maintenance resulting from the A.C. water line leaks and breaks also poses an increase cost to the customers.

V THE PROPOSED PROJECT

The WFWD proposes to upgrade approximately 43,000 l.f. of A.C. water line to PVC water line as part of the Phase I AC Water Line Replacement Project. This Project will include the following roads in rural Western Fleming County: Delaney Road (from the Delaney Tank to KY 165), KY 165 (from Delaney Road to KY 32) and KY 32 (from KY 165 to the Fleming County High School). Refer to Appendix B - Project Map. This should eliminate most of the water leaks and breaks that the WFWD is currently experiencing in these areas. The use of PVC water line will also eliminate the potential health hazards associated with exposure to A.C. water line.

Also as part of this project, WFWD will be increasing the size of the water line along KY 32 from 6-inch to 8-inch. This should provide better service to the existing customers, including the Ewing Elementary School, the Fleming County High School and provide capacity for future demand.

VI COST SUMMARY

The estimated construction cost for the Phase I – A.C. Water Line Replacement Project is \$1,638,000 and is summarized in Table 1. The estimated project cost is \$2,080,000 and is summarized in Table 2.



Water/Wastewater
Transportation
Engineers
Environmental

Project: _____
Date: 2/29/2016
Engineer: JR
Page: _____

Table 1
Estimated Construction Cost
for
AC Water Line Replacement
Western Fleming Water District

Description	Quantity	Unit	Unit Price	Total
10" PVC Water Line	11,500	LF	\$20	\$230,000
10" D.I. Water Line	400	LF	\$50	\$20,000
8" PVC Water Line	29,100	LF	\$16	\$465,600
8" D.I. Water Line	2,000	LF	\$60	\$120,000
18" Steel Casing Pipe by Bore & Jack	20	LF	\$150	\$3,000
16" Steel Casing Pipe by Bore & Jack	380	LF	\$125	\$47,500
16" Steel Casing Pipe by Bore & Jack for Rail Road Crossing	60	LF	\$250	\$15,000
10" Gate Valve	6	EA	\$2,200	\$13,200
8" Gate Valve	14	EA	\$1,500	\$21,000
Remove Existing Gate Valve Box	25	EA	\$75	\$1,875
Fire Hydrant Assembly	12	EA	\$3,500	\$42,000
Remove Existing Fire Hydrant	12	EA	\$350	\$4,200
Air Release Valve	11	EA	\$900	\$9,900
Customer Service w/ Regulator (Same Side)	110	EA	\$1,500	\$165,000
Customer Service w/ Regulator (Opp. Side)	110	EA	\$1,600	\$176,000
Additional Service Line	1,000	LF	\$8	\$8,000
Type "B" Creek Crossing	130	LF	\$60	\$7,800
Freebore under Asphalt & Conc. Driveways	720	LF	\$50	\$36,000
Connection to Existing Main (Including Valve)	25	EA	\$3,500	\$87,500
Cut & Cap Existing Water Line	10	EA	\$1,000	\$10,000
Flowable Fill Concrete	600	LF	\$20	\$12,000
Asphalt Base on State Maintained Road	88	TON	\$140	\$12,320
Asphalt Surface on State Maintained Road	88	TON	\$140	\$12,320
Asphalt Milling and Texturing on State Maintained Road	88	TON	\$30	\$2,640
Pavement Striping	4,000	LF	\$0.50	\$2,000
Asphalt Replacement Non-State Maintained	500	LF	\$50.00	\$25,000
#57 Crushed Stone	2,500	LF	\$10	\$25,000
Cleanup and Restoration	43,000	LF	\$1	\$43,000
Misc. Items	1	LS	\$20,000	\$20,000

Total \$1,637,855
USE \$1,638,000



Water/Wastewater
 Transportation
 Engineers
 Environmental

Project:
 Date: 2/29/2016
 Engineer: JR
 Page:

Table 2
Estimated Project Cost
 for
AC Water Line Replacement
Western Fleming Water District

Construction Cost			\$1,638,000
Legal & Admin.			\$5,000
BTADD Admin.			\$25,000
Land & Rights			\$5,000
Railroad Permit & Insurance			\$20,000
Engineering			\$226,000
	Preliminary	\$10,000	
	Design/Bid/CA	\$132,000	
	Inspection	\$81,000	
	Railroad Survey & Application	\$3,000	
Contingencies			\$161,000
TOTAL ESTIMATED PROJECT COST			\$2,080,000

VII FUNDING

Proposed funding for this project is being made available by the following:

TABLE 3
PROPOSED FUNDING

ARC Grant	\$300,000
CDBG	\$700,000
RUS Grant	\$270,000
RUS Loan ⁽¹⁾	\$810,000
TOTAL PROJECT FUNDING	\$2,080,000

(1) 1.875% loan for 40 years with principal deferred for 2 years.

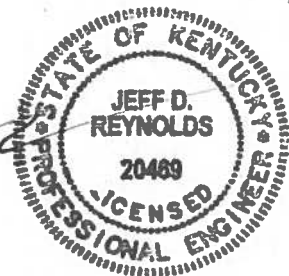
VIII RECOMMENDATIONS

It is recommended that the project be funded by Rural Development and a Letter of Conditions be issued as soon as possible.

Prepared By:

HMB Professional Engineers, Inc.


Jeff Reynolds, P.E.
Project Manager



Appendix A

DOW Letter



MATTHEW G. BEVIN
GOVERNOR

CHARLES G. SNAVELY
SECRETARY

**ENERGY AND ENVIRONMENT CABINET
Department for Environmental Protection**

Aaron B. Keatley
COMMISSIONER

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601

November 23, 2016

Mr. Jeff Reynolds, P.E.
HMB Professional Engineers, Inc.
3 HMB Circle
US 460
Frankfort, KY 40601

Re: Water Quality Certification
Western Fleming Water District
Agency Interest: 3284, SGC20160001
Phase I AC Waterline Replacement

Dear Mr. Reynolds:

Information provided by your office indicates that the existing Western Fleming Water District drinking water system has 43,000 LF of existing asbestos cement water line that is subject to numerous leaks and break creating health risks for not only customers, but also maintenance crews tasked with repair/replacement of the pipe as broken asbestos cement water line is considered a hazardous material. The proposed project would replace the 43,000 LF of AC pipe with new PVC waterline reducing the number of breaks and the hazards associated with maintenance and repair of a hazardous material.

Based on the information provided, the Division of Water hereby certifies that health and/or sanitary hazards currently exist for the above community. Therefore, the proposed improvements stated in your letter regarding the subject project are necessary and provide residents with adequate service consistent with the requirements of regulation 401 KAR 8:100.

If you have any questions concerning this request, please contact us at (502) 782-6983.

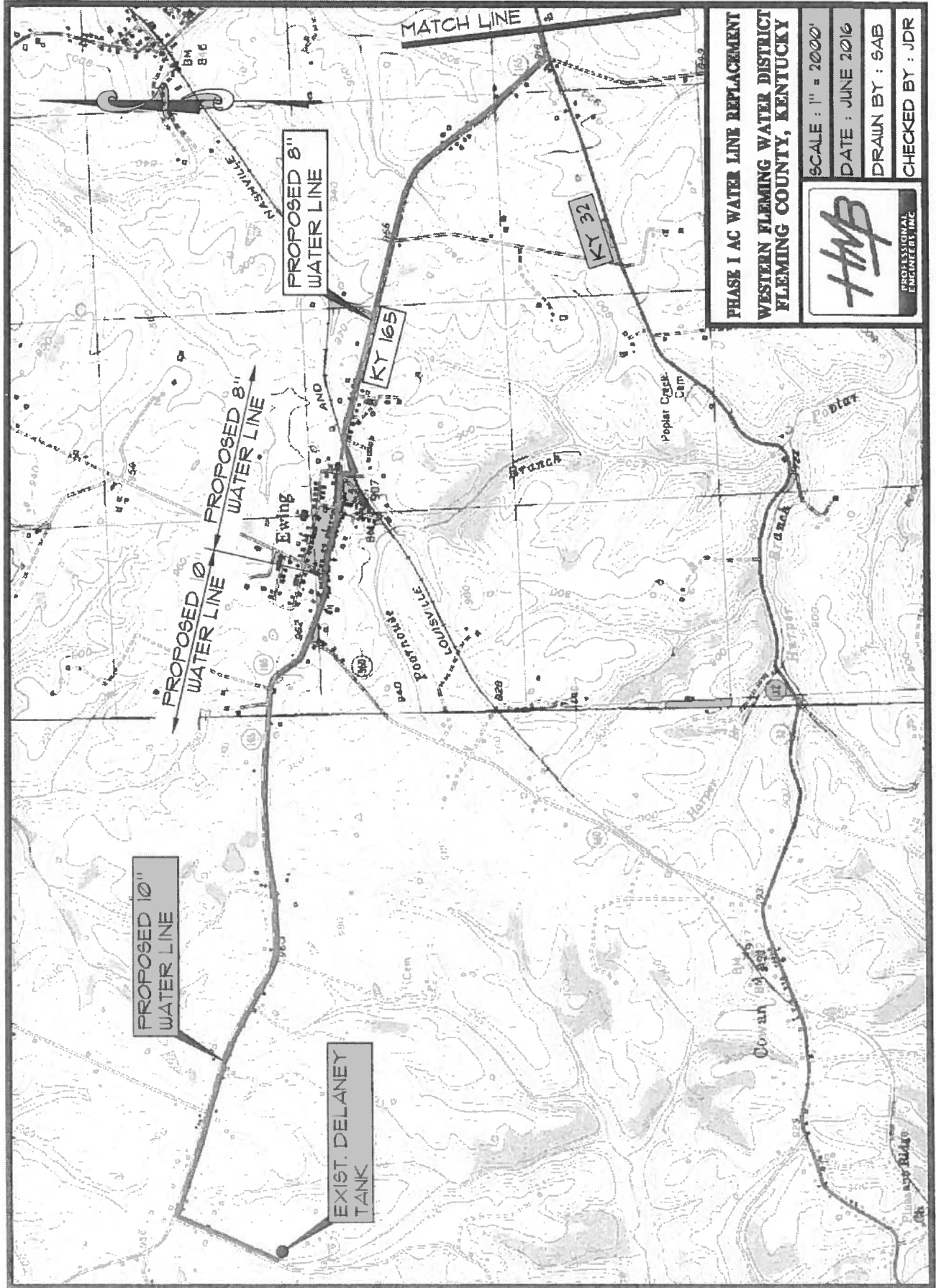
Sincerely,

Terry Humphries, P.E.
Supervisor, Engineering Section
Water Infrastructure Branch
Division of Water

C: Western Fleming Water District

Appendix B

Project Maps



**PHASE I AC WATER LINE REPLACEMENT
WESTERN FLEMING WATER DISTRICT
FLEMING COUNTY, KENTUCKY**

SCALE : 1" = 2000'
DATE : JUNE 2016
DRAWN BY : SAB
CHECKED BY : JDR



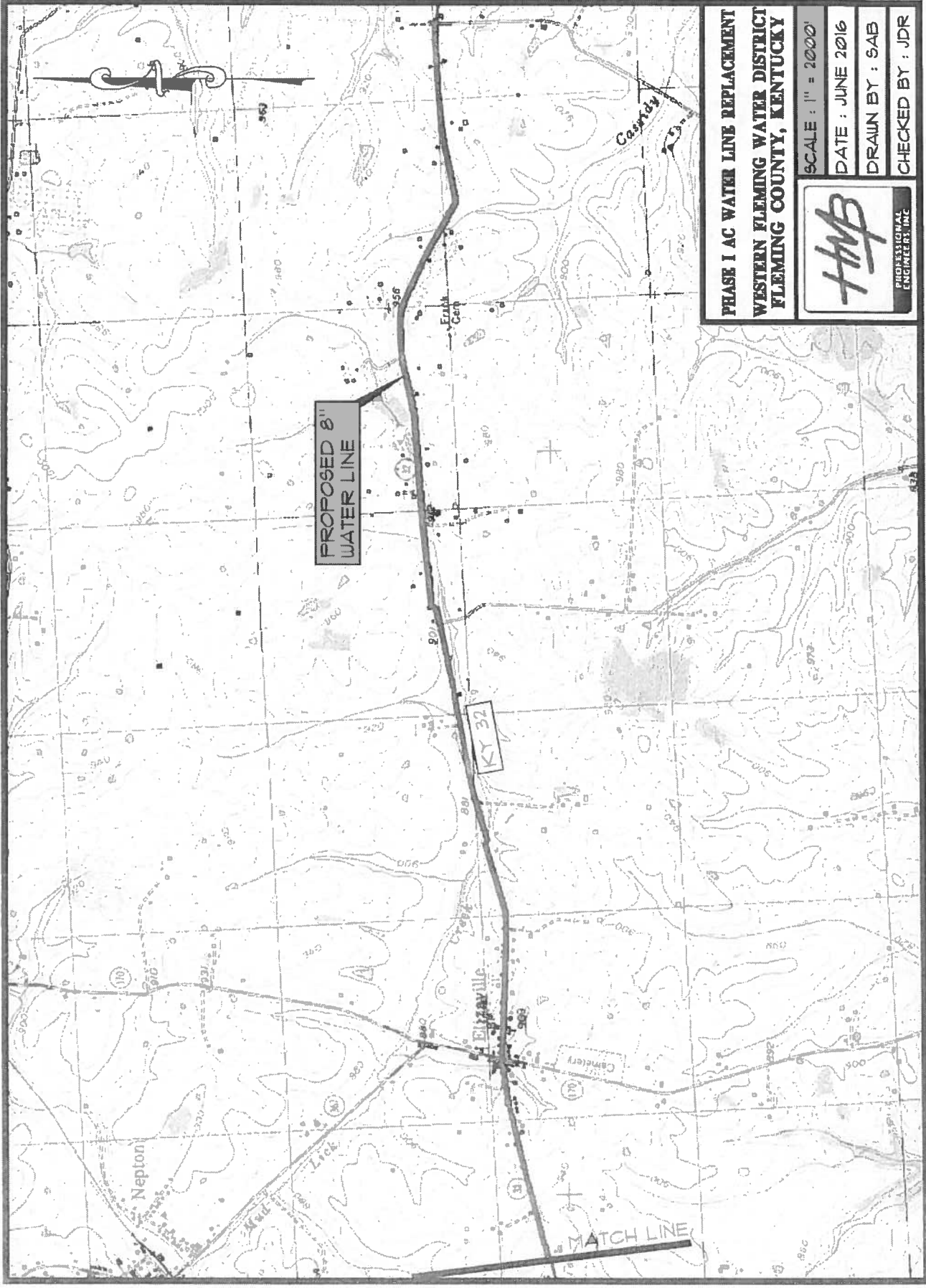
PROPOSED 10"
WATER LINE

PROPOSED 8"
WATER LINE

PROPOSED 8"
WATER LINE

EXIST. DELANEY
TANK

MATCH LINE



**PHASE I AC WATER LINE REPLACEMENT
WESTERN FLEMING WATER DISTRICT
FLEMING COUNTY, KENTUCKY**

SCALE : 1" = 2000'

DATE : JUNE 2016

DRAWN BY : SAB

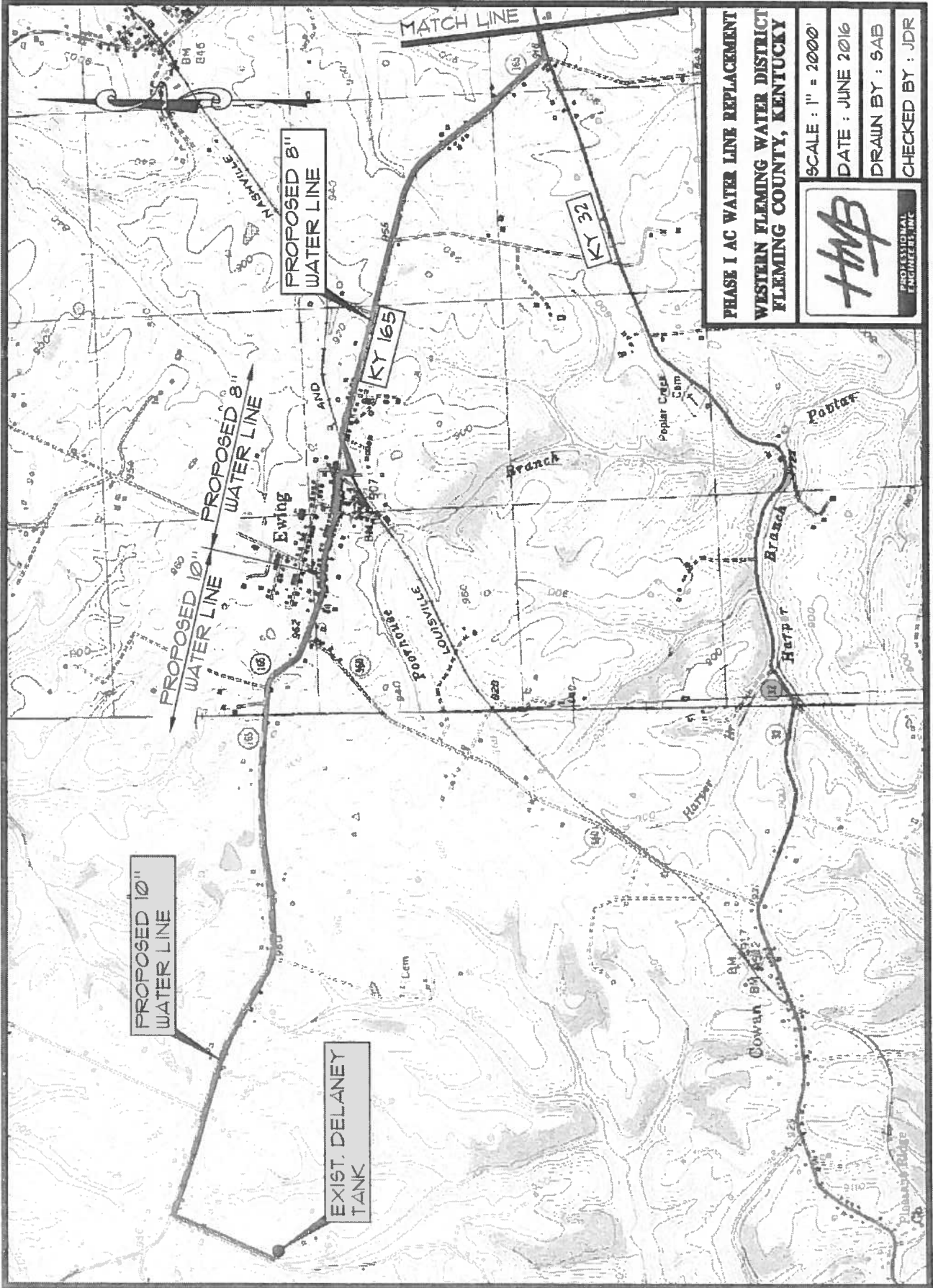
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**PROPOSED 8"
WATER LINE**

KY 32

MATCH LINE



**PHASE I AC WATER LINE REPLACEMENT
WESTERN FLEMING WATER DISTRICT
FLEMING COUNTY, KENTUCKY**

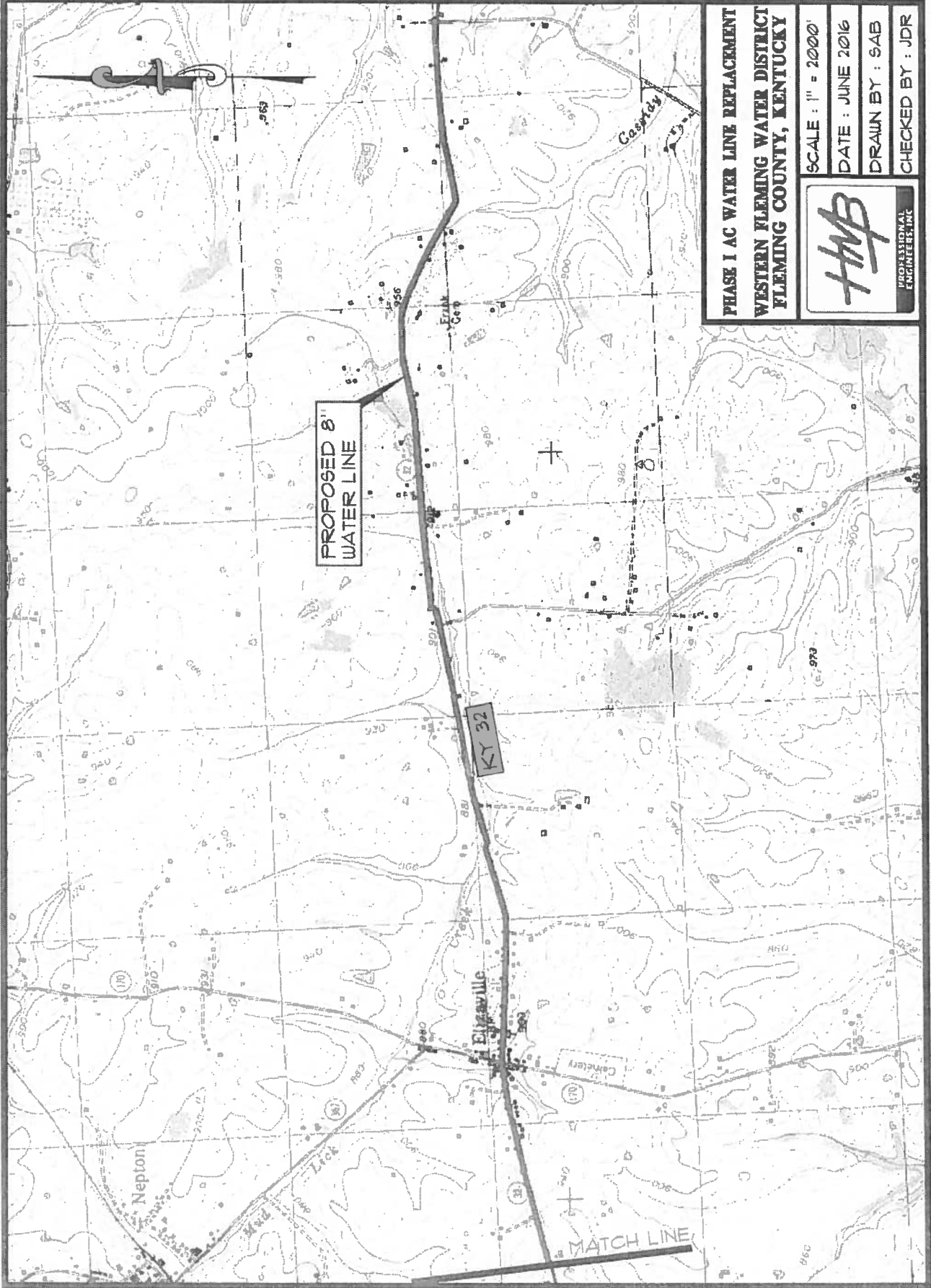
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PROPOSED 8"
WATER LINE

KY 32

MATCH LINE

**PHASE I AC WATER LINE REPLACEMENT
WESTERN FLEMING WATER DISTRICT
FLEMING COUNTY, KENTUCKY**

HMB
PROFESSIONAL
ENGINEERS, INC.

SCALE : 1" = 2000'
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