

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

APPLICATION OF KENTUCKY-)	
AMERICAN WATER COMPANY FOR A)	CASE NO. 2023-00248
CERTIFICATE OF PUBLIC)	
CONVENIENCE AND NECESSITY)	
AUTHORIZING THE CONSTRUCTION OF)	
A WATER TRANSMISSION MAIN TO THE)	
CITY OF MILLERSBURG)	

KENTUCKY-AMERICAN WATER COMPANY’S
ORDERING PARAGRAPH 2 REPORT

The Commission granted Kentucky-American Water Company’s (“KAW”) request for a Certificate of Public Convenience and Necessity (“CPCN”) in this matter by Order of December 4, 2023. The CPCN authorized KAW’s construction of a pipeline connecting KAW’s existing distribution system to its customers in Millersburg, Kentucky to meets the needs of those Millersburg customers and the surrounding area. In Ordering Paragraph 2 of that Order, the Commission directed KAW to notify the Commission of any material changes to the authorized pipeline project including any cost increases. KAW hereby provides such notification.

When KAW filed its Application in this matter, it also submitted the testimony of KAW engineer John Magner. Mr. Magner described the need for the project, the various alternatives for meeting that need, the estimated costs of those alternatives, and, ultimately the selection of the most reasonable alternative for the stated need.¹ The selected alternative KAW proposed and the Commission approved in its CPCN was estimated to cost approximately \$12.8 million. In describing that estimate, Mr. Magner stated:

An engineer’s opinion of probable cost was developed in March 2023. The total estimated cost of the project is \$12,800,000. A detailed cost estimate is provided in Exhibit 4. The actual project cost may vary from

¹ Direct Testimony of John Magner, July 26, 2023, pp. 2-10.

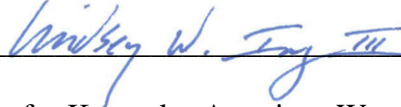
the engineer's opinion of estimate project cost based on local labor market conditions and material prices at the time of bidding.²

As Mr. Magner stated might happen in his testimony, the actual bids received were higher than the original \$12.8 million estimate. Since the development of that estimate, KAW solicited bids for the project and received them in April and May of 2024. They were higher than the \$12.8 million estimate for various reasons. After working with bidders and the Kentucky Transportation Cabinet, KAW has been able to reduce the bid amounts to approximately \$18.5 million. The attached report from Mr. Magner describes in detail a project status report including project timing (the line is still expected to be in service by the end of 2024 as described in this proceeding), the bidding process, and KAW's efforts to reduce bid amounts.

Date: June 14, 2024

Respectfully submitted,

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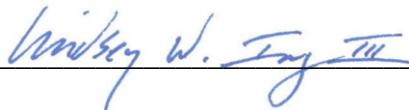
By: 
Attorneys for Kentucky-American Water Company

² Id., p. 8.

CERTIFICATE

This certifies that Kentucky-American Water Company's electronic filing is a true and accurate copy of the documents in paper medium; that the electronic filing has been transmitted to the Commission on June 14, 2024; and that no party has been excused from participation by electronic means.

STOLL KEENON OGDEN PLLC

By 

Attorneys for Kentucky-American Water Company



June 13, 2024

Kentucky Public Service Commission
 211 Sower Boulevard
 Frankfort, Kentucky

RE: Case No. 2023-00248 – Millersburg Water Supply Project Update

Members of the Kentucky Public Service Commission:

In July 2023, Kentucky American Water Company (KAW) filed an application for a Certificate of Public Convenience and Necessity (CPCN) (Case No. 2023-00248) to construct a new water main to supply water to KAW’s system in the City of Millersburg. The Kentucky Public Service Commission (PSC) granted a CPCN for the project through an Order entered on December 4, 2023.

Since the order was issued, KAW has proceeded with the design, procurement, and value engineering phases of the project and wishes to provide the PSC with an overall project update as we proceed to construction.

Project Schedule

Overall, the project is still scheduled to be delivered and placed in service by December 2024, but some deliverables were shifted to accommodate CPCN approval and finalize follow-up Kentucky Transportation Cabinet (KYTC) permit comments. A comparison of the schedule presented in the CPCN application and the current schedule with milestones is provided in Table 1.

Table 1. Project Schedule Overview

Milestone	CPCN Schedule	Current Schedule
Design Complete	November 2023	March 26, 2024
Bid Advertisement	November 2023	March 26, 2024
Pre-Bid Meeting		March 28, 2024
Bids Received	December 2023	Contract A: April 29, 2024 Contract B: April 25, 2024 Contract C: May 1, 2024 Contract D: May 3, 2024
Contractor Value Engineering Workshop		May 8, 2024
Right-of-Way Permitting Meeting with KYTC		May 29, 2024
Construction Start	January 2024	July 2024
Main In-Service	December 2024	December 2024



Final Bid Design

- As noted in Table 2, the final bid design quantities for pipe installation exceeded the quantities estimated in the proposed project submitted on July 26, 2023 in KAW's CPCN filing.

Table 2. Pipe Installation Quantity Comparison

Pipe Installation Method	Preliminary CPCN Estimate Quantity (Linear Feet)	Final Issued for Bid Design Quantity (Linear Feet)
Open-Cut	62,000	59,575
Jack and Bore	775	3,675
Horizontal Directional Drill	1,000	4,000
Total	63,775	67,250

- The overall increase in the length of main to be installed is primarily a result of alignment modifications to avoid existing utilities and satisfy permit submittal comments from KYTC. Additional trenchless installation (jack and bore and horizontal directional drill) was required to satisfy KYTC permit submittal comments and to avoid environmental impacts within the project corridor.
- The number of valves and hydrants to be installed was also increased to provide for greater ability to isolate areas of the main (such as at creek crossings) and flush the main.

Property Acquisition

As noted in the CPCN application, the project was anticipated to be constructed primarily within public right-of-way. The project will be constructed within public right-of-way with the exception of two properties where KAW is seeking easement. KAW has obtained one of those easements and is in the process of obtaining the second one.

Permitting

KAW is obtaining multiple permits prior to constructing the project. Several environmental/floodplain and hydraulic permits are being obtained from the Kentucky Division of Water and the United States Army Corps of Engineers. These permits have either been granted to KAW or are in the final regulatory review stages.

KAW is also obtaining a right-of-way encroachment permit from KYTC. After submitting an initial permit application, KYTC directed KAW to revise the project design to meet the following requirements, among others.

- Water mains must be installed beneath stormwater culverts, regardless of the depth of the culvert, even if adequate clearances can be maintained with the water main being installed above the culvert.
- Water main cannot be installed within the limits of the paved roadway.



- The water main should be installed at the back of right-of-way, even if that requires tree removal.

KAW revised the design to accommodate these requests. After receiving bid pricing, trenchless installations due to the requirement of installing water main beneath culverts was observed to be a significant driver of increased costs (see Value Engineering section below). KAW met with representatives of KYTC's permitting team on May 29 to discuss this requirement and identified areas where KAW would be able to install water main around existing culverts or could acceptably install water main above deep existing culverts. KAW is currently finalizing revised drawings to resubmit to KYTC.

Bidding and Bid Pricing

KAW issued bid documents for the final bid design to contractors on March 26, 2024 and held a pre-bid meeting on March 28, 2024. In addition to contractors who have historically performed work for KAW, KAW reached out to contractors with large diameter pipeline construction experience in the Kentucky/Tennessee/Indiana/West Virginia/Ohio region to bid on the project. These contractors meet KAW's safety requirements and have proven histories of successfully constructing similar projects. Six of the seven contractors contacted by KAW attended the pre-bid meeting (sign-in sheet provided in Appendix A), making them eligible to bid on the construction contracts.

KAW procured construction services via four construction contracts. This approach, as opposed to procuring construction services for the entire project via one contract, was selected for the reasons noted below.

- Obtain sufficient contractor capacity to construct the project and place it in-service by December 2024.
- Allow contractors to adjust pricing based on bid results of previously awarded contracts. This creates a more competitive bidding environment and provides opportunities for cost savings such as contractors reducing their mobilization/demobilization costs for being awarded multiple contracts.
- Provide opportunities for more contractors to bid on the work. Contractors that may not have the capacity to construct the entire project were able to bid on individual contracts.

Bid openings for each contract were staggered by two business days which allowed bidders to evaluate their capacity and bid pricing based on the bid results for previous contracts.

Summary cost estimate information presented in the CPCN filing is presented in Table 3 and summary bid information for each of the contracts is provided in Table 4. Complete bid tabulations for each contract are provided in Appendix B.



Table 3. Preliminary Estimated Contract Labor Costs Provided in CPCN Filing

Item	Value
Length of Pipe to be Installed (linear feet)	63,775
Total Estimated Contract Labor Cost	\$7,125,100
Estimated Contract Labor Cost per Linear Foot of Main Installed	\$111.72

Table 4. Summary of Bids

Contract	Bid Received	Approx. Pipe Length to be Installed (Feet)	Successful Contractor Bid Price (Contract Labor)	Contract Labor Cost per Linear foot of Main Installed
A	April 29	9,355	\$999,976	\$106.89
B	April 25	29,800	\$9,755,976	\$327.38 ²
C	May 1	15,860	\$1,858,880	\$117.21
D	May 3	16,160	\$1,793,550	\$110.99
Total		71,175 ¹	\$14,408,382	\$202.44

¹After bids were received, an error in the bid quantities provided by KAW's design consultant was discovered, which resulted in a discrepancy between the design and bid quantities for 16" open-cut pipe installation. See the Value Engineering section for additional discussion.

²Contract B pricing is greater than other contracts due to significant trenchless pipe installation and installation within developed areas.

After receiving the bids, KAW developed estimates of the overall project cost and project construction costs. Cost estimate information is summarized in Table 5, Table 6, Table 6a, and Table 6b.

Table 5. Post-Bid Total Project Cost Estimate

Cost Item	Cost
Design Consultant Fee	\$409,520.00
Contract Labor	\$14,408,382.00
Materials	\$5,925,000.00
Internal Direct Labor	\$67,500.00
Overhead	\$1,383,302.20
AFUDC	\$500,000.00
Legal/Easements	\$50,000.00
Total	\$22,743,704.20



Table 6. Post-Bid Project Construction Cost Estimate

Cost Item	Contract				
	A	B	C	D	Total
Contract Labor	\$999,976.00	\$9,755,976.00	\$1,858,880.00	\$1,793,550.00	\$14,408,382.00
Materials	\$935,000.00	\$3,030,000.00	\$960,000.00	\$1,000,000.00	\$5,925,000.00
Internal Direct Labor	\$6,423.47	\$42,445.15	\$9,357.73	\$9,273.65	\$67,500.00
Overhead	\$131,638.53	\$869,843.92	\$191,771.49	\$190,048.26	\$1,383,302.20
AFUDC	\$47,581.26	\$314,408.49	\$69,316.56	\$68,693.69	\$500,000.00
Total	\$2,120,619.27	\$14,012,673.56	\$3,089,325.78	\$3,061,565.60	\$22,284,184.20

Table 6a. Trenchless Installation Labor Cost Summary (Trenchless Portion of Bid)

Cost Item	Contract				
	A	B	C	D	Total
Jack and Bore Labor Cost	\$123,750.00	\$3,310,000.00	\$647,580.00	\$795,900.00	\$4,877,230.00
Horizontal Directional Drill Labor Cost	\$0.00	\$2,760,000.00	\$0.00	\$0.00	\$2,760,000.00
Total Trenchless Install. Labor Cost	\$123,750.00	\$6,070,000.00	\$647,580.00	\$795,900.00	\$7,637,230.00

Table 6b. Post-Bid Project Construction Cost Estimate (Open Cut Portion)

Cost Item	Contract				
	A	B	C	D	Total
Contract Labor	\$876,226.00	\$3,685,976.00	\$1,211,300.00	\$997,650.00	\$6,771,152.00
Materials	\$935,000.00	\$3,030,000.00	\$960,000.00	\$1,000,000.00	\$5,925,000.00
Internal Direct Labor	\$9,629.51	\$35,705.97	\$11,543.87	\$10,620.65	\$67,500.00
Overhead	\$123,464.93	\$249,931.29	\$82,133.41	\$67,646.66	\$523,176.28
AFUDC	\$49,930.81	\$185,142.05	\$59,857.11	\$55,070.03	\$350,000.00
Total	\$1,994,251.25	\$7,186,755.30	\$2,324,834.39	\$2,130,987.34	\$13,636,828.28

NOTE: DUE TO BID COSTS ASSOCIATED WITH TRENCHLESS INSTALLATION, KAW HAS MET WITH KYTC TO ADDRESS PERMITTING REQUESTS REQUIRING TRENCHLESS INSTALLATION



KAW evaluated the bids and cost estimates and observed several factors resulting in the increased estimated project cost.

Table 7. Summary of Primary Cost Increase Drivers

Item	Description	Estimated Cost Impact
Increase in Pipe Footage	Additional pipe to be installed to avoid utility impacts and satisfy permitting requirements	\$990,000
Material Cost Increases	Increase in pipe prices from material suppliers	\$1,500,000
Additional Trenchless Main Installation	Additional trenchless pipe installation to avoid environmental and utility impacts	\$6,434,730

- Increase in Pipe Footage:** During initial project evaluation, the project was scoped to include the installation of approximately 33,000 linear feet and 31,000 linear feet of 16” and 12” main, respectively. After detailed design, the project includes the installation of approximately 36,700 linear feet of 16” water main and 30,500 linear feet of 12” water main. Overall, this results in an approximately 5.4% increase in the total amount of main to be installed. The increase in the length of main to be installed is primarily a result of alignment modifications to avoid existing utilities and satisfy permit submittal comments from the Kentucky Transportation Cabinet (KYTC). Assuming an average total cost of approximately \$330/LF for pipe installation based on the post-bid construction cost estimate, the additional length of pipe to be installed results in a cost increase of \$990,000.
- Material Cost Increases:** Since the original cost estimate was developed, KAW has experienced significant cost increases from pipe suppliers. At the time the original cost estimate was developed, the cost for 12” ductile iron pipe and 16” ductile iron pipe was \$40 and \$55 per linear foot, respectively. KAW’s current cost for 12” and 16” ductile iron pipe for the project is \$[REDACTED] and \$[REDACTED] per linear foot, respectively. Considering the length of main proposed to be installed, these material cost increases result in an overall project cost increase of approximately \$1.5 million.
- Additional Trenchless Main Installation:** In order to avoid existing utilities and stream/environmental impacts, as well as to satisfy KYTC permitting requirements, the final project design project included a significantly greater amount of main installation via trenchless methods, which include jack and bore and horizontal directional drilling (HDD). The original cost estimate assumed a total of 775 linear feet of jack and bore installation at an average contract labor price of \$777.42/linear foot and 1,000 linear feet of HDD installation at \$600/linear foot, for a total trenchless installation contract labor cost of \$1,202,500 for the project.

After final design and bidding, the project included 3,673 linear feet of jack and bore main installation and 4,000 linear feet of HDD main installation. Jack and bore installation contract labor prices (from successful bidders) ranged from \$1,650-2,250/linear foot for 16” main and \$753-1,050/linear foot for 12” main. The HDD contractor labor prices for the successful bidder was \$690/linear foot. The total post-bid estimated cost for trenchless installation was \$7,637,230.00,



which is significantly higher than originally estimated. Additionally, contract labor pricing for only trenchless installation, which represents approximately 11% of the total main to be installed, represents approximately 53% of the contract labor price for the total project. Bidding contractors noted the significant presence of rock and the number of bore setups as reasons for elevated pricing.

As noted in Table 5, the post-bid estimated cost for the project was \$22,743,704.20, which is higher than the \$12,800,000 estimated project cost provided in the direct testimony and application for the project's CPCN filing. However, through value engineering discussed below, KAW has reduced the estimated cost by approximately \$4.3 million, or 19%, to \$18,454,290.02 (see Value Engineering section for additional discussion).

KAW originally estimated an average contract labor price for open-cut main installation of \$80/linear foot. The average successful bid pricing for open-cut installation was \$85/linear foot, so KAW's estimate of contract labor unit pricing for most of the work was similar to the bid pricing. Overall, the current overall construction cost per linear foot of main installed is \$267.58/LF compared to an estimated cost of \$189.73/linear foot presented in the CPCN filing.

Value Engineering

In addition to soliciting multiple qualified contractors and structuring the project bidding to create a competitive bidding environment, KAW reviewed the Issued for Bid drawings, contractor bid pricing, and conducted value engineering workshops with successful bidders to identify ways to reduce the overall construction cost. Additionally, KAW representatives held an in-person meeting with representatives from KYTC's permitting staff on May 29 to discuss permitting requirements and opportunities to reduce project costs while still satisfying permit requirements. After these reviews and discussions were completed, KAW identified 37 opportunities to reduce the cost of the project, as presented in Appendix C. Key cost reduction opportunities are discussed below.

- Eliminate jack and bore roadway crossings: As discussed previously, a significant portion of the project cost is a result of jack and bore main installation. KAW reviewed the proposed main alignment and identified areas where it could be revised to avoid or lessen the need for jack and bore installation. This included removing crossings under state maintained-roads and installing pipe across local roads via open-cut methodologies. After performing value engineering, KAW reduced the amount of jack and bore roadway crossings by approximately 1,650 linear feet for a total savings of approximately \$2.1 million.
- Eliminate jack and bore culvert/utility crossings: KAW met with representatives from KYTC and identified areas where it would be permissible for KAW to open cut over very deep culverts (KYTC had requested that KAW install *under* all culverts which is extremely expensive) or to install around culverts. Additionally, KAW identified areas where pipe could be installed under shallow culverts or other utilities via open-trench methodologies. KAW anticipates removing approximately 480 linear feet of jack and bore culvert and utility crossings for an estimated cost savings of approximately \$440,000. Several jack and bore crossings beneath/around large culverts could not be eliminated due to permitting requirements pertaining to jurisdictional streams flowing downstream of the culverts.



- Reduce HDD main installation: After speaking with the contractor responsible for the project’s HDD main installation, they noted they could reduce the amount of HDD main installation if high density polyethylene (HDPE) pipe is utilized instead of ductile iron pipe since HDPE allows for more deflection of the pipe. KAW is allowing HDPE pipe to be used for the HDD installations, which reduces the amount of HDD installation by 1,074 linear feet and reduces costs by approximately \$684,000.
- Bid Item Adjustment: After bids were received, KAW was informed of an error in the bid quantities provided by KAW’s design consultant. Approximately 1,800 linear feet of additional 16” main installation was included in the bid quantities above what was included in the final bid design. After reducing the bid quantity to align with the design, a savings of \$211,500 was realized.
- Additional savings: Other cost-reducing opportunities identified by KAW include reducing the cover over the main from 42” to 36” outside of the KYTC ditch line (estimated savings of approximately \$21,000) and a contractor mobilization/demobilization credit of \$110,695 for being awarded multiple contracts.

Table 8. Post-Value Engineering Construction Cost Estimate

Cost Item	Contract				Total
	A	B	C	D	
Contract Labor	\$880,203.60	\$6,772,443.06	\$1,595,236.00	\$1,493,559.20	\$10,741,441.86
Materials	\$935,000.00	\$2,782,920.00	\$960,000.00	\$1,000,000.00	\$5,677,920.00
Internal Direct Labor	\$7,462.30	\$39,282.10	\$10,504.58	\$10,251.02	\$67,500.00
Overhead	\$123,587.68	\$650,574.51	\$173,972.61	\$169,773.36	\$1,117,908.16
AFUDC	\$43,115.52	\$226,963.24	\$60,693.10	\$59,228.13	\$390,000.00
Total	\$1,989,369.11	\$10,472,182.91	\$2,800,406.29	\$2,732,811.71	\$17,994,770.02

Overall, KAW has identified approximately \$4.3 million in savings to date, which includes overhead and AFUDCC cost savings, resulting in an updated construction cost estimate of approximately \$18.0 million, which is presented in Table 8. Including design and pre-construction fees, the total estimated cost of the project is approximately \$18.5 million.



Table 9. Post-Value Engineering Total Project Construction Cost Estimate

Cost Item	Cost
Design Consultant Fee	\$409,520.00
Contract Labor	\$10,741,441.86
Materials	\$5,677,920.00
Internal Direct Labor	\$67,500.00
Overhead	\$1,117,908.16
AFUDC	\$390,000.00
Legal/Easements	\$50,000.00
Total	\$ 18,454,290.02

KAW continues to evaluate additional cost saving opportunities. Cost saving opportunities are subject to change pending final permit approvals and contract negotiations.

While the estimated cost of the project has increased, this cost increase does not necessitate a reconsideration of the project alternatives presented in John Magner’s Direct Testimony filed as part of the CPCN case. As noted below, the other alternatives would likely at least be as equally affected by price increases and/or have other drawbacks that result in them not being the best alternative for KAW and its customers.

- Construct a main through Downtown Paris: This alternative included a significant amount of main installation through developed areas of Paris. This option continues to be undesirable because of the disruption it would cause in downtown Paris. Also, the work associated with this alternative most closely resembles the work in Contract B of the proposed project, and, since it is Contract B of the proposed project where KAW has seen prices increase most dramatically, it is clear that those same increases would apply to a main through downtown Paris. Therefore, this alternative would exceed the proposed project in cost. Additionally, this alternative would require significant pavement and concrete restoration, which would further increase costs.
- Construct a main through Rural Areas South of Paris: As noted in the CPCN Direct Testimony, this alternative would not provide adequate hydraulic capacity to meet the anticipated demand of the area served by the proposed project.
- Construct a main from North Middletown: This alternative included a significantly greater amount of main installation when compared to the proposed project, which would result in a significantly higher cost than the proposed project.

Final Construction and Cost Documentation

Per the PSC’s CPCN order, KAW will file applicable cost documentation with the PSC within 60 days of the project’s substantial completion date. Additionally, as-built drawings and a certified statement regarding the satisfactory completion of construction will be provided within 60 days of substantial project completion.



Conclusion

In consideration of the additional footage associated with alignment adjustments, trenchless installation required to meet permitting requirements, and the significant value engineering efforts accomplished by KAW to reduce post bid project costs by 19%, the resulting current average total project cost of \$267.58/LF for large diameter 12" and 16" DIP installation, continues to result in a prudent and impactful project significantly needed to provide our Millersburg customers quality water service in compliance with Kentucky Department of Water permitting requirements and supply capacity needs by our regional utility customers.

All project stakeholders including the elected officials, regional utility customers, economic development groups, and various government entities within Millersburg and the surrounding communities continue to voice their support and express their excitement for this project, as the project has an immediate positive economic impact associated with taxes collected for the construction activities, provides quality water service to our Millersburg customers, and provides a solution to the existing capacity challenges faced by our neighboring water utilities.

KAW is pleased to provide this update for the Millersburg Water Supply project and looks forward to providing excellent service this Central Kentucky region.

Sincerely,

A handwritten signature in blue ink that reads "John Magner".

John Magner, PE
Sr. Project Engineer

APPENDIX A

PRE-BID MEETING SIGN-IN SHEETS



Sign In Sheet

Meeting: Millersburg Water Supply Project Pre-Bid Meeting
Date/Time: March 28, 2024, 2:00 PM
Location: Kentucky American Water Main Office

Name	Company	Email
Justin Dix	DCM	
SETH C DIX	DCM	
JAMES GOFF	Stantec	
Nathan Krebs	Stantec	
Brandon Popham	Stantec	
Scott Gibson	LCC	
Tom Colley	LCC	
Grant Hamilton	Cleary	
John Kraft	MAC	
Gabe Copley	CJH	
Shelley Porter	KAW	
TYLER SWOPE	KAW	
Matthew Graff	KAW	
John Maguire	KAW	

APPENDIX B
BID TABULATIONS

Project: Millersburg Water Supply Project - Contract A
WBS: I12-020113-01
Bids Opened: April 29, 2024, 3:00 PM
PM: John Magner
Inspector: Corey Allender

Contractor determines quantity

Payment Procedure Item	Line No.	Description	Unit	Estimated Quantity
A	1	Mobilization and Closeout	LS	1
B	2	Traffic Control	LS	1
Main Installation				
C	3	Excavation, Install, and Backfilling of Pipe		
C1	3a	12-inch Dia. Ductile Iron Main	LF	0
C2	3b	16-inch Dia. Ductile Iron Main	LF	9,300
D	4	Driveway/Entrance Crossing Installation		
D1	4a	Trenchless Installation (No casing required)	EA	
D2	4b	Open-Cut Installation	EA	
E	5	Jack & Bore Pipe Installation		
E	5a	Bore & Jack: 24-inch Steel Casing w/ 12-inch Dia. Ductile Iron Main	LF	0
E	5b	Bore & Jack: 30-inch Steel Casing w/ 16-inch Dia. Ductile Iron Main	LF	55
F	6	16-inch Dia. Horizontal Directional Bore Pipe Installation	LF	0
H	7	Shut Down and Tie-In	EA	1
I	8	Cut and Cap Existing Water Main	EA	1
Valves & Hydrants				
J	9	Valve Installation		
J	9a	12-inch Gate Valve & Box	EA	0
J	9b	16-inch Gate Valve & Box	EA	7
K	10	Air Release Valve	EA	4
M	11	Hydrant Installation	EA	4
Restoration				
Q	12	Open-Cut Trench Flowable Backfill	CY	30
R1	13	Concrete Sidewalk	SF	0
S	14	Concrete Curb & Gutter	LF	0
T	15	Permanent Asphaltic Pavement: Roadway & Driveway Apron	SF	
Total of All Unit Price Bid Items:				
C/F	16	Total Cost Reduction For HDD/Open-Cut	LS	1
Total of All Unit Price Bid Items w/ Adjustment for HDD/Open-Cut:				

CONFIDENTIAL INFORMATION REDACTED

Project: Millersburg Water Supply Project - Contract B
WBS: I12-020113-01
Bids Opened: April 25, 2024, 3:00 PM
PM: John Magner
Inspector: Corey Allender

Contractor determines quantity

Payment Procedure Item	Line No.	Description	Unit	Estimated Quantity
A	1	Mobilization and Closeout	LS	1
B	2	Traffic Control	LS	1
Main Installation				
C	3	Excavation, Install, and Backfilling of Pipe		
C1	3a	12-inch Dia. Ductile Iron Main	LF	0
C2	3b	16-inch Dia. Ductile Iron Main	LF	23,800
D	4	Driveway/Entrance Crossing Installation		
D1	4a	Trenchless Installation (No casing required)	EA	
D2	4b	Open-Cut Installation	EA	
E	5	Jack & Bore Pipe Installation		
E	5a	Bore & Jack: 24-inch Steel Casing w/ 12-inch Dia. Ductile Iron Main	LF	0
E	5b	Bore & Jack: 30-inch Steel Casing w/ 16-inch Dia. Ductile Iron Main	LF	2,000
F	6	16-inch Dia. Horizontal Directional Bore Pipe Installation	LF	4,000
H	7	Shut Down and Tie-In	EA	0
I	8	Cut and Cap Existing Water Main	EA	0
Valves & Hydrants				
J	9	Valve Installation		
J	9a	12-inch Gate Valve & Box	EA	0
J	9b	16-inch Gate Valve & Box	EA	25
K	10	Air Release Valve	EA	9
M	11	Hydrant Installation	EA	11
Restoration				
Q	12	Open-Cut Trench Flowable Backfill	CY	0
R1	13	Concrete Sidewalk	SF	3,432
S	14	Concrete Curb & Gutter	LF	573
T	15	Permanent Asphaltic Pavement: Roadway & Driveway Apron	SF	1,600
Total of All Unit Price Bid Items:				
C/F	16	Total Cost Reduction For HDD/Open-Cut	LS	1
Total of All Unit Price Bid Items w/ Adjustment for HDD/Open-Cut:				

CONFIDENTIAL INFORMATION REDACTED

Project: Millersburg Water Supply Project - Contract C
WBS: I12-020113-01
Bids Opened: May 1, 2024, 3:00 PM
PM: John Magner
Inspector: Corey Allender

Contractor determines quantity

Payment Procedure Item	Line No.	Description	Unit	Estimated Quantity
A	1	Mobilization and Closeout	LS	1
B	2	Traffic Control	LS	1
Main Installation				
C	3	Excavation, Install, and Backfilling of Pipe		
C1	3a	12-inch Dia. Ductile Iron Main	LF	15000
C2	3b	16-inch Dia. Ductile Iron Main	LF	0
D	4	Driveway/Entrance Crossing Installation		
D1	4a	Trenchless Installation (No casing required)	EA	
D2	4b	Open-Cut Installation	EA	
E	5	Jack & Bore Pipe Installation		
E	5a	Bore & Jack: 24-inch Steel Casing w/ 12-inch Dia. Ductile Iron Main	LF	860
E	5b	Bore & Jack: 30-inch Steel Casing w/ 16-inch Dia. Ductile Iron Main	LF	0
F	6	16-inch Dia. Horizontal Directional Bore Pipe Installation	LF	0
H	7	Shut Down and Tie-In	EA	0
I	8	Cut and Cap Existing Water Main	EA	0
Valves & Hydrants				
J	9	Valve Installation		
J	9a	12-inch Gate Valve & Box	EA	6
J	9b	16-inch Gate Valve & Box	EA	0
K	10	Air Release Valve	EA	6
M	11	Hydrant Installation	EA	6
Restoration				
Q	12	Open-Cut Trench Flowable Backfill	CY	0
R1	13	Concrete Sidewalk	SF	0
S	14	Concrete Curb & Gutter	LF	0
T	15	Permanent Asphaltic Pavement: Roadway & Driveway Apron	SF	
Total of All Unit Price Bid Items:				
C/F	16	Total Cost Reduction For HDD/Open-Cut	LS	1
Total of All Unit Price Bid Items w/ Adjustment for HDD/Open-Cut:				

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Project: Millersburg Water Supply Project - Contract D
WBS: I12-020113-01
Bids Opened: May 3, 2024, 3:00 PM
PM: John Magner
Inspector: Corey Allender

Contractor determines quantity

Payment Procedure Item	Line No.	Description	Unit	Estimated Quantity
A	1	Mobilization and Closeout	LS	1
B	2	Traffic Control	LS	1
Main Installation				
C	3	Excavation, Install, and Backfilling of Pipe		
C1	3a	12-inch Dia. Ductile Iron Main	LF	15400
C2	3b	16-inch Dia. Ductile Iron Main	LF	0
D	4	Driveway/Entrance Crossing Installation		
D1	4a	Trenchless Installation (No casing required)	EA	
D2	4b	Open-Cut Installation	EA	
E	5	Jack & Bore Pipe Installation		
E	5a	Bore & Jack: 24-inch Steel Casing w/ 12-inch Dia. Ductile Iron Main	LF	758
E	5b	Bore & Jack: 30-inch Steel Casing w/ 16-inch Dia. Ductile Iron Main	LF	0
F	6	16-inch Dia. Horizontal Directional Bore Pipe Installation	LF	0
H	7	Shut Down and Tie-In	EA	1
I	8	Cut and Cap Existing Water Main	EA	0
Valves & Hydrants				
J	9	Valve Installation		
J	9a	12-inch Gate Valve & Box	EA	9
J	9b	16-inch Gate Valve & Box	EA	0
K	10	Air Release Valve	EA	5
M	11	Hydrant Installation	EA	7
Restoration				
Q	12	Open-Cut Trench Flowable Backfill	CY	0
R1	13	Concrete Sidewalk	SF	0
S	14	Concrete Curb & Gutter	LF	0
T	15	Permanent Asphaltic Pavement: Roadway & Driveway Apron	SF	
Total of All Unit Price Bid Items:				
C/F	16	Total Cost Reduction For HDD/Open-Cut	LS	1
Total of All Unit Price Bid Items w/ Adjustment for HDD/Open-Cut:				

CONFIDENTIAL INFORMATION REDACTED

APPENDIX C

VALUE ENGINEERING ITEMS

Item	Sheet ¹	Approx. STA ¹	Add/Remove	Payment Item	Unit	Quantity	Cost	Net Add/Remove	Description
A1	C02	21+75	Remove	Bore & Jack: 30-inch Steel Casing w/ 16-inch Dia. Ductile Iron Main	LF	-40	\$ 2,250.00	\$ (90,000.00)	Open-cut over deep culvert.
			Add	16-inch Dia. Ductile Iron Main	LF	40	\$ 72.32	\$ 2,892.80	
			Total						
A2	C03	36+00	Remove	Bore & Jack: 30-inch Steel Casing w/ 16-inch Dia. Ductile Iron Main	LF	-15	\$ 2,250.00	\$ (33,750.00)	Open-cut install under culvert.
			Add	16-inch Dia. Ductile Iron Main	LF	15	\$ 72.32	\$ 1,084.80	
			Total						
B1	C07-C08, C13, C21-C22	95+00, 175+50, 298+50	Remove	16-inch Dia. Horizontal Directional Bore Pipe Installation (Ductile Iron Pipe)	LF	-4000	\$ 690.00	\$ (2,760,000.00)	Reduce length/depth of HDD across streams. Change pipe material from ductile iron to HDPE, which allows for the shortened lengths.
			Remove	16-inch Dia. Ductile Iron Pipe Material	LF	-3000	\$ 82.36	\$ (247,080.00)	
			Add	16-inch Dia. Ductile Iron Main	LF	1000	\$ 17.50	\$ 17,500.00	
			Add	16-inch Dia. Horizontal Directional Bore Pipe Installation (HDPE Pipe)	LF	2926	\$ 788.00	\$ 2,305,688.00	
			Total						
B2	C08	95+00	Remove	Bore & Jack: 30-inch Steel Casing w/ 16-inch Dia. Ductile Iron Main	LF	-265	\$ 1,655.00	\$ (438,575.00)	Change jack and bore to open-cut across local road.
			Add	16-inch Dia. Ductile Iron Main	LF	265	\$ 117.50	\$ 31,137.50	
			Add	Permanent Asphaltic Pavement: Roadway & Driveway Apron	SF	150	\$ 78.00	\$ 11,700.00	
			Add	Concrete Sidewalk	SF	50	\$ 17.00	\$ 850.00	
			Add	Concrete Curb & Gutter	LF	15	\$ 79.00	\$ 1,185.00	
			Add	Traffic Control	LS	1	\$ 2,000.00	\$ 2,000.00	
			Total						
B3	C09	117+75	Remove	Bore & Jack: 30-inch Steel Casing w/ 16-inch Dia. Ductile Iron Main	LF	-220	\$ 1,655.00	\$ (364,100.00)	Change jack and bore to open-cut across local road.
			Add	16-inch Dia. Ductile Iron Main	LF	220	\$ 117.50	\$ 25,850.00	
			Add	Permanent Asphaltic Pavement: Roadway & Driveway Apron	SF	500	\$ 78.00	\$ 39,000.00	
			Add	Concrete Sidewalk	SF	500	\$ 17.00	\$ 8,500.00	
			Add	Concrete Curb & Gutter	LF	15	\$ 79.00	\$ 1,185.00	
			Add	Traffic Control	LS	1	\$ 2,000.00	\$ 2,000.00	
			Total						
B4	C10	138+00	Remove	Bore & Jack: 30-inch Steel Casing w/ 16-inch Dia. Ductile Iron Main	LF	-100	\$ 1,655.00	\$ (165,500.00)	Change jack and bore to open-cut across local road.
			Add	16-inch Dia. Ductile Iron Main	LF	100	\$ 117.50	\$ 11,750.00	
			Add	Permanent Asphaltic Pavement: Roadway & Driveway Apron	SF	400	\$ 78.00	\$ 31,200.00	
			Add	Traffic Control	LS	1	\$ 2,000.00	\$ 2,000.00	
			Total						
B5	C10	143+50	Remove	Bore & Jack: 30-inch Steel Casing w/ 16-inch Dia. Ductile Iron Main	LF	-80	\$ 1,655.00	\$ (132,400.00)	Change jack and bore to open-cut across local road.
			Add	16-inch Dia. Ductile Iron Main	LF	80	\$ 117.50	\$ 9,400.00	
			Add	Permanent Asphaltic Pavement: Roadway & Driveway Apron	SF	320	\$ 78.00	\$ 24,960.00	
			Add	Traffic Control	LS	1	\$ 2,000.00	\$ 2,000.00	
			Total						
B6	C11	146+60	Remove	Bore & Jack: 30-inch Steel Casing w/ 16-inch Dia. Ductile Iron Main	LF	-15	\$ 1,655.00	\$ (24,825.00)	Open-cut install over culvert.
			Add	16-inch Dia. Ductile Iron Main	LF	15	\$ 117.50	\$ 1,762.50	
			Total						

B7	C11	155+00	Remove	Bore & Jack: 30-inch Steel Casing w/ 16-inch Dia. Ductile Iron Main	LF	-48	\$ 1,655.00	\$ (79,440.00)	Change jack and bore to open-cut across local road.
			Add	16-inch Dia. Ductile Iron Main	LF	48	\$ 117.50	\$ 5,640.00	
			Add	Permanent Asphaltic Pavement: Roadway & Driveway Apron	SF	160	\$ 78.00	\$ 12,480.00	
			Add	Concrete Curb & Gutter	LF	15	\$ 79.00	\$ 1,185.00	
			Add	Traffic Control	LS	1	\$ 2,000.00	\$ 2,000.00	
Total								\$ (58,135.00)	
B8	C12	163+50	Remove	Bore & Jack: 30-inch Steel Casing w/ 16-inch Dia. Ductile Iron Main	LF	-110	\$ 1,655.00	\$ (182,050.00)	Change jack and bore to open-cut across local road.
			Add	16-inch Dia. Ductile Iron Main	LF	110	\$ 117.50	\$ 12,925.00	
			Add	Permanent Asphaltic Pavement: Roadway & Driveway Apron	SF	320	\$ 78.00	\$ 24,960.00	
			Add	Traffic Control	LS	1	\$ 2,000.00	\$ 2,000.00	
Total								\$ (142,165.00)	
B9	C12	167+50	Remove	Bore & Jack: 30-inch Steel Casing w/ 16-inch Dia. Ductile Iron Main	LF	-150	\$ 1,655.00	\$ (248,250.00)	Remove jack and bore roadway crossing.
Total								\$ (248,250.00)	
B10	C12	169+00	Remove	Bore & Jack: 30-inch Steel Casing w/ 16-inch Dia. Ductile Iron Main	LF	-42	\$ 1,655.00	\$ (69,510.00)	Change jack and bore to open-cut across local road.
			Add	16-inch Dia. Ductile Iron Main	LF	42	\$ 117.50	\$ 4,935.00	
			Add	Permanent Asphaltic Pavement: Roadway & Driveway Apron	SF	320	\$ 78.00	\$ 24,960.00	
			Add	Traffic Control	LS	1	\$ 2,000.00	\$ 2,000.00	
Total								\$ (37,615.00)	
B11	C21	296+50	Remove	Bore & Jack: 30-inch Steel Casing w/ 16-inch Dia. Ductile Iron Main	LF	-85	\$ 1,655.00	\$ (140,675.00)	Change jack and bore to open-cut across local road.
			Add	16-inch Dia. Ductile Iron Main	LF	85	\$ 117.50	\$ 9,987.50	
			Add	Permanent Asphaltic Pavement: Roadway & Driveway Apron	SF	320	\$ 78.00	\$ 24,960.00	
			Add	Traffic Control	LS	1	\$ 2,000.00	\$ 2,000.00	
Total								\$ (103,727.50)	
B12	C22	313+00	Remove	Bore & Jack: 30-inch Steel Casing w/ 16-inch Dia. Ductile Iron Main	LF	-105	\$ 1,655.00	\$ (173,775.00)	Change jack and bore to open-cut beneath railroad bridge.
			Add	16-inch Dia. Ductile Iron Main	LF	105	\$ 117.50	\$ 12,337.50	
Total								\$ (161,437.50)	
B13	C23	326+50	Remove	Bore & Jack: 30-inch Steel Casing w/ 16-inch Dia. Ductile Iron Main	LF	-125	\$ 1,655.00	\$ (206,875.00)	Change jack and bore to open-cut across local road.
			Add	16-inch Dia. Ductile Iron Main	LF	125	\$ 117.50	\$ 14,687.50	
			Add	Permanent Asphaltic Pavement: Roadway & Driveway Apron	SF	250	\$ 78.00	\$ 19,500.00	
			Add	Traffic Control	LS	1	\$ 2,000.00	\$ 2,000.00	
Total								\$ (170,687.50)	
B14	C25	357+25	Remove	Bore & Jack: 30-inch Steel Casing w/ 16-inch Dia. Ductile Iron Main	LF	-33	\$ 2,250.00	\$ (74,250.00)	Open-cut install under waterline.
			Add	16-inch Dia. Ductile Iron Main	LF	33	\$ 72.32	\$ 2,386.56	
Total								\$ (71,863.44)	
B15	C26	365+60	Remove	Bore & Jack: 30-inch Steel Casing w/ 16-inch Dia. Ductile Iron Main	LF	-100	\$ 1,655.00	\$ (165,500.00)	Remove jack and bore roadway crossing.
Total								\$ (165,500.00)	
B16			Remove	Paving Reduction	LS	-1	\$ 125,000.00	\$ (125,000.00)	Negotiate paving or do paving internally.
Total								\$ (125,000.00)	
B17			Remove	Mobilization and Closeout	LS	-1	\$ 110,695.00	\$ (110,695.00)	Credit from contractor for doing one mobilization for two contracts.
Total								\$ (110,695.00)	
B18			Remove	16-inch Dia. Ductile Iron Main	LF	7075	\$ (3.00)	\$ (21,225.00)	Estimated savings for reducing pipe depth by 6" in areas where pipe is installed outside ditch line.
Total								\$ (21,225.00)	
B19			Remove	16-inch Dia. Ductile Iron Main	LF	-1800	\$ 117.50	\$ (211,500.00)	Adjustment for bid quantity error.
Total								\$ (211,500.00)	

C1	C26	374+00	Remove	Bore & Jack: 24-inch Steel Casing w/ 12-inch Dia. Ductile Iron Main	LF	-55	\$ 753.00	\$ (41,415.00)	Change jack and bore to open-cut across local road.
			Add	12-inch Dia. Ductile Iron Main	LF	55	\$ 65.00	\$ 3,575.00	
			Add	Permanent Asphaltic Pavement: Roadway & Driveway Apron	SF	120	\$ 13.00	\$ 1,560.00	
			Add	Concrete Curb & Gutter	LF	15	\$ 100.00	\$ 1,500.00	
			Add	Traffic Control	LS	1	\$ 2,000.00	\$ 2,000.00	
Total								\$ (32,780.00)	
C2	C27	384+25	Remove	Bore & Jack: 24-inch Steel Casing w/ 12-inch Dia. Ductile Iron Main	LF	-12	\$ 753.00	\$ (9,036.00)	Open-cut install around culvert.
			Add	12-inch Dia. Ductile Iron Main	LF	12	\$ 65.00	\$ 780.00	
			Total						
C3	C29	410+50	Remove	Bore & Jack: 24-inch Steel Casing w/ 12-inch Dia. Ductile Iron Main	LF	-83	\$ 753.00	\$ (62,499.00)	Change jack and bore to open-cut across local road.
			Add	12-inch Dia. Ductile Iron Main	LF	83	\$ 65.00	\$ 5,395.00	
			Add	Permanent Asphaltic Pavement: Roadway & Driveway Apron	SF	240	\$ 13.00	\$ 3,120.00	
			Add	Traffic Control	LS	1	\$ 2,000.00	\$ 2,000.00	
			Total						
C4	C29	414+00	Remove	Bore & Jack: 24-inch Steel Casing w/ 12-inch Dia. Ductile Iron Main	LF	-30	\$ 753.00	\$ (22,590.00)	Open-cut install around culvert.
			Add	12-inch Dia. Ductile Iron Main	LF	30	\$ 65.00	\$ 1,950.00	
			Total						
C5	C33	475+75	Remove	Bore & Jack: 24-inch Steel Casing w/ 12-inch Dia. Ductile Iron Main	LF	-23	\$ 753.00	\$ (17,319.00)	Open-cut install around culvert.
			Add	12-inch Dia. Ductile Iron Main	LF	23	\$ 65.00	\$ 1,495.00	
			Total						
C6	C34	488+20	Remove	Bore & Jack: 24-inch Steel Casing w/ 12-inch Dia. Ductile Iron Main	LF	-30	\$ 753.00	\$ (22,590.00)	Open-cut install around culvert.
			Add	12-inch Dia. Ductile Iron Main	LF	30	\$ 65.00	\$ 1,950.00	
			Total						
C7	C35	495+50	Remove	Bore & Jack: 24-inch Steel Casing w/ 12-inch Dia. Ductile Iron Main	LF	-75	\$ 753.00	\$ (56,475.00)	Open-cut install around culvert.
			Add	12-inch Dia. Ductile Iron Main	LF	75	\$ 65.00	\$ 4,875.00	
			Total						
C8	C36	509+00	Remove	Bore & Jack: 24-inch Steel Casing w/ 12-inch Dia. Ductile Iron Main	LF	-90	\$ 753.00	\$ (67,770.00)	Open-cut install over one culvert and under another culvert.
			Add	12-inch Dia. Ductile Iron Main	LF	90	\$ 65.00	\$ 5,850.00	
			Total						
C9	C37	531+50	Remove	Bore & Jack: 24-inch Steel Casing w/ 12-inch Dia. Ductile Iron Main	LF	-20	\$ 1,050.00	\$ (21,000.00)	Open-cut install around culvert.
			Add	12-inch Dia. Ductile Iron Main	LF	100	\$ 62.00	\$ 6,200.00	
			Total						
D1	C39	560+00	Remove	Bore & Jack: 24-inch Steel Casing w/ 12-inch Dia. Ductile Iron Main	LF	-30	\$ 1,050.00	\$ (31,500.00)	Open-cut install around culvert.
			Add	12-inch Dia. Ductile Iron Main	LF	30	\$ 62.00	\$ 1,860.00	
			Total						
D2	C40	560+00	Remove	Bore & Jack: 24-inch Steel Casing w/ 12-inch Dia. Ductile Iron Main	LF	-20	\$ 1,050.00	\$ (21,000.00)	Open-cut install around culvert.
			Add	12-inch Dia. Ductile Iron Main	LF	20	\$ 62.00	\$ 1,240.00	
			Total						
D3	C40	579+25 ²	Remove	Bore & Jack: 24-inch Steel Casing w/ 12-inch Dia. Ductile Iron Main	LF	-125	\$ 1,050.00	\$ (131,250.00)	Eliminate jack and bore roadway crossing.
			Total						
D4	C41	590+00 ²	Add	Permanent Asphaltic Pavement: Roadway & Driveway Apron	SF	160	\$ 11.92	\$ 1,907.20	Revised alignment adds one open-cut local road crossing.
			Add	Traffic Control	LS	1	\$ 2,000.00	\$ 2,000.00	
			Total						

D5	C44	629+25 ²	Remove	Bore & Jack: 24-inch Steel Casing w/ 12-inch Dia. Ductile Iron Main	LF	-160	\$ 1,050.00	\$ (168,000.00)	Alter state road crossing location to reduce length
			Add	Bore & Jack: 24-inch Steel Casing w/ 12-inch Dia. Ductile Iron Main	LF	100	\$ 1,050.00	\$ 105,000.00	
			Total						
D6	C44	637+60	Remove	Bore & Jack: 24-inch Steel Casing w/ 12-inch Dia. Ductile Iron Main	LF	-21	\$ 1,050.00	\$ (22,050.00)	Open-cut install around culvert
			Add	12-inch Dia. Horizontal Directional Bore Pipe Installation	LF	21	\$ 62.00	\$ 1,302.00	
			Total						
D7	C45	669+25	Remove	Bore & Jack: 24-inch Steel Casing w/ 12-inch Dia. Ductile Iron Main	LF	-25	\$ 1,050.00	\$ (26,250.00)	Open-cut install under culvert.
			Add	12-inch Dia. Horizontal Directional Bore Pipe Installation	LF	25	\$ 62.00	\$ 1,550.00	
			Total						

¹ Sheets and stationing based on Issued for Bid, Revision B construction drawings.

² Items based on a revised main alignment on the opposite side of the roadway.