

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF ESTILL COUNTY)	
WATER DISTRICT NO. 1 FOR)	
AUTHORIZATION TO ENTER AN)	
ASSISTANCE AGREEMENT WITH THE)	
KENTUCKY INFRASTRUCTURE)	
AUTHORITY, FOR A CERTIFICATE OF)	CASE NO. 2021-00064
PUBLIC CONVENIENCE TO CONSTRUCT)	
CERTAIN WATER IMPROVEMENTS AND)	
AUTHORIZATION TO USE WATER LOSS)	
CONTROL PROGRAM SURCHARGE)	
PROCEEDS)	

APPLICATION

Pursuant to KRS 278.020(1), KRS 278.300, and 807 KAR 5:001, Sections 15 and 18, Estill County Water District No. 1 (“Estill District”) applies to the Public Service Commission (“Commission”) for an Order authorizing Estill District’s entry into an Assistance Agreement with the Kentucky Infrastructure Authority (“KIA”) to borrow an amount not to exceed \$2,399,450, subject to an adjustment of up to 10 percent, and granting a certificate of public convenience and necessity for the purchase and installation of 17 zone meters, the installation of telemetry improvements, and the replacement of four stream crossings. It further seeks authorization to use the proceeds from its Water Loss Control Program Surcharge (“Water Loss Surcharge”) to service the debt resulting from the Assistance Agreement.

In support of its Application,¹ Estill District provides the following:

¹ To facilitate the Public Service Commission’s initial review of this Application, Estill District has attached to this Application a “Filings Requirements List” that consists of four pages, lists each statutory and regulatory requirement for an application for authorization to issue evidences of indebtedness and a certificate of public convenience and necessity, and identifies the exhibit or paragraph that satisfies the requirement.

A. General Information

1. The full name and post office address of Estill District is: Estill County Water District No. 1, 76 Cedar Grove Road, Irvine, Kentucky 40336. Its e-mail address is: a.miller@estillcountywater.com.

2. Copies of all orders, pleadings and other communications related to this proceeding should be directed to²:

Audrea Miller
Office Manager
76 Cedar Grove Road
Irvine, Kentucky 40336
(606) 723-3795
a.miller@estillcountywater.com

Gerald E. Wuetcher
Stoll Keenon Ogden PLLC
2100 West Vine Street, Ste 2100
Lexington, KY 40507-1801
(859) 231-3017
gerald.wuetcher@skofirm.com

3. Estill District not a corporation, limited liability company or limited partnership. It has no articles of incorporation or partnership agreements.

4. Estill District is a water district created under the provisions of KRS Chapter 74.

5. KRS 365.015 does not require Estill District to file a certificate of assumed name.

6. Estill District was duly incorporated, pursuant to KRS Chapter 74, by Order of the Estill County Court entered on December 30, 1960, a copy of which is attached as **Exhibit 1** and was merged with the former Estill County Water District No. 2 into a single Water District by Order of Estill County Court entered on January 1, 1978, a copy of which is attached as **Exhibit 2**.

² On February 5, 2021 pursuant to 807 KAR 5:001, Section 8, Estill District notified the Public Service Commission of its election of the use of electronic filing procedures for this proceeding.

7. Estill District is engaged in the distribution and sale of water in the non-incorporated areas of Estill County, Kentucky. As of December 31, 2019, it served approximately 3,527 residential customers and 171 commercial customers³

8. A copy of the resolution of Estill District’s Board of Commissioners authorizing the filing of this application is attached at **Exhibit 3** of this Application.

B. Estill District’s Unaccounted-For Water Loss

9. As shown in the table below, for each year since 2010 Estill District has been unable to account for 23 percent or more of its total purchased water. Since 2014, it has experienced an unaccounted water rate in excess of 35 percent. For every three gallons of water purchased since 2014, Estill District has recorded sales of less than two gallons of water.

Year	Unaccounted-For Water Loss (%)
2010	25.8524
2011	27.4459
2012	23.6125
2013	32.0143
2014	36.4580
2015	35.4295
2016	35.2625
2017	37.6515
2018	39.6243
2019	37.4645
2020	37.5343

10. This high rate of unaccounted-for water adversely affects Estill District’s finances. 807 KAR 5:066, Section 6(3) provides that “[e]xcept purchased water rate adjustments for water districts and water associations, and rate adjustments pursuant to KRS 278.023(4), for rate making purposes a utility’s unaccounted-for water loss shall not exceed fifteen (15) percent of total water

³ *Annual Report of Estill County Water District No. 1 to the Public Service Commission of the Commonwealth of Kentucky for the Calendar Year Ended December 31, 2019* at Ref Page 27.

produced and purchased, excluding water used by a utility in its own operations.” Therefore, a significant portion of Estill District’s purchased water expense is subject to disallowance and is not recoverable through Estill District’s rates for water service.

11. Estill District has experience significant financial problems due to its high level of unaccounted-for water. In the period from 2013 through 2019, it had a cumulative net income of (\$2,813,453). In February 2018, Estill District failed to meet scheduled principal and interest payments on several bonds that Rural Development held and was considered a delinquent debtor by Rural Development. Rural Development subsequently agreed to restructure Estill District’s loans, reamortize those loans with their interest rates reduced to Rural Development’s poverty interest rate and reschedule their payment.

12. The Commission has attributed Estill District’s recent financial problems to poor water loss control. In Case No. 2017-00176, it noted that Estill District’s “current financial difficulties could be eliminated by reducing unaccounted-for water loss to 15 percent” and strongly encouraged Estill District “to pursue reasonable actions to reduce its unaccounted-for water loss.”⁴ In Case No. 2018-00276,⁵ it noted the futility of Estill District restructuring its debt unless it was also “taking steps to correct the primary cause of its financial condition.” Suggesting that the restructuring of Estill District’s debt represented a final opportunity for Estill District to address its water loss problems, the Commission directed that Estill District to prepare a detailed and comprehensive plan to correct excessive water loss.⁶

⁴ *Electronic Application of Estill County Water District No. 1 for Rate Adjustment Pursuant to 807 KAR 5:076*, Case No. 2017-00176 (Ky. PSC Dec. 20, 2017) at 4.

⁵ *Electronic Application of Estill County Water District No. 1 for Authorization to Consolidate its Existing Loans with Citizens Guaranty Bank*, Case No. 2018-00276 (Ky. PSC Dec. 21, 2018) at 5.

⁶ *Id.* at 6 (“Given Estill District No. 1’s history of non-compliance and its financial condition, it may not get another opportunity to correct the water loss issues.”).

13. On May 15, 2019 at the Commission's direction, Estill District filed with the Commission a Comprehensive Corrective Action Plan to address its excessive water loss. A copy of this Plan is attached to this Application as **Exhibit 4.**⁷ The Plan analyzed Estill District's current water loss trends and identified potential corrective actions to reduce Estill District's water losses. Bell Engineering, the Plan's author, projected that, if Estill District took no action to implement a water loss reduction program, Estill District's non-revenue water would exceed its actual metered water sales by 2026.⁸

14. Bell Engineering recommended as Estill District's initial water loss control measures: (1) the purchase and installation of zone meters and the establishment of district metered areas; (2) installation of a backflow prevention device at the Irvine Bridge Master Meter;⁹ (3) replacement of at least 20 percent of its existing customer meters; and (4) the hiring of additional personnel dedicated to leak detection efforts. Bell Engineering estimated that the costs of these measures would be approximately \$1,021,000.¹⁰

15. In Case No. 2019-00176,¹¹ Estill District applied to the Commission for authorization to assess to each customer a monthly surcharge of \$3.54 to fund a comprehensive water loss program. The surcharge was expected to generate annual revenues of approximately \$159,880. On August 29, 2019, the Commission issued an Order permitting the surcharge to take effect.¹²

⁷ *Id.* at 7 (directing Estill District file a "a detailed and comprehensive plan to correct its excessive water loss").

⁸ Bell Engineering, *Comprehensive Correction Action Plan* (May 15, 2019) at 46.

⁹ Using internally generated funds, Estill District installed a backflow prevention device at the Irvine Bridge Master Meter in June 2019 at a cost of \$19,892.

¹⁰ *Id.* at 47-48; Application, Exhibit 3, *Electronic Application of Estill County Water District No. 1 For A Surcharge to Finance Water Loss Control Efforts*, Case No. 2019-00176 (Ky. PSC filed Jun. 13, 2019).

¹¹ *Electronic Application of Estill County Water District No. 1 For A Surcharge to Finance Water Loss Control Efforts*, Case No. 2019-00176 (Ky. PSC filed Jun. 13, 2019).

¹² *See also* Case No. 2019-00176, Order of July 28, 2020 (clarifying the effective date of the surcharge).

16. Estill District recognized that the surcharge would not produce revenues sufficient to fully support the measures necessary to resolve its water loss problem and sought funding from other sources to support its water loss control efforts. In the Comprehensive Corrective Action Plan, Bell Engineering had in fact recommended that Estill District seek additional funding from Rural Development, the Kentucky Infrastructure Authority (“KIA”), and Appalachian Regional Commission (“ARC”) to finance its water loss control measures.¹³

17. Estill District’s efforts to secure other sources of funding were successful. On December 5, 2019 KIA Board of Directors authorized a loan not to exceed \$2,399,450 (“KIA Loan F20-13”) to Estill District to finance the construction of the Phase 11 - System Improvements and Meter Purchase and Replacement Project. The minutes of the meeting in which KIA’s Board of Directors authorized this loan are attached as **Exhibit 5** to this Application. The Appalachian Regional Commission subsequently awarded a grant of \$500,000 to Estill District for the same project. A copy of the Notice to Obligate is attached to this Application as **Exhibit 6**.¹⁴

C. Phase 11 – System Improvements and Meter Purchase and Replacement Project

18. Estill District proposes its Phase 11 – System Improvements and Meter Purchase and Replacement Project (“Phase 11 Project”) - a series of system improvements to enhance its ability to locate and repair leaks within its distribution system, as well as replace substandard stream crossings water service lines and aging metering equipment. The improvements will be made in two stages. In the first stage, Estill District will replace four stream crossings, establish a zone meter system through the purchase and installation of 17 meters, and upgrade its system

¹³ *Comprehensive Correction Action Plan* at 48.

¹⁴ *See also* Press Release, Office of the Governor of Kentucky, Gov. Beshear Announces More than \$5 Million in Grants to Kentucky Cities and Counties (May 28, 2020) (available at <https://kentucky.gov/Pages/Activity-stream.aspx?n=GovernorBeshear&prId=186>).

telemetry. In the second stage, for which approval is not sought in this Application, Estill District will the replaced 3,000 existing residential meters with radio read meters, install 700 adapters on existing residential meters for radio read capability, remove 100 inactive meters, and upgrade its meter reading software and equipment.

19. The first stage of the Phase 11 Project involves the establishment of a zone metering system. It will divide Estill District into twelve zones and place at least one water meter or flowmeter in each zone to measure the volume entering the zone. Three zones will be divided into subzones, each with its own meter. One meter will be installed to measure the volume of water purchased from Estill District’s water supplier. Telemetry equipment for each meter will also be installed to enable Estill District to monitor its zone and sub-zone meters, to have real-time information regarding the flow of water in its water distribution system, and to react immediately to changing conditions in its water system. The establishment of a zone metering system is consistent with the Commission’s guidance to all water utilities with significant water loss to “begin installing zone meters to help identify problem areas” and, where possible, to “install[] bypass meters . . . to help isolate leaks into smaller areas.”¹⁵

20. In addition to the establishment of a zone metering system, Estill District proposes to replace four existing stream crossings in the first stage of the Phase 11 Project to improve system reliability and reduce water loss. The existing stream crossings sit on streambeds and are vulnerable to being washed out during periods of heavy rain and flooding, resulting in significant water loss and the disruption of water service. Estill District proposes to install new crossings underneath the streambeds using directional boring.

¹⁵ *Electronic Investigation into Excessive Water Loss by Kentucky’s Jurisdictional Water Utilities*, Case No. 2019-00041 (Ky. PSC Nov. 22, 2019) at 6-7.

21. In the second phase of the Phase 11 Project, Estill District will expand its ability to monitor water usage and water loss through the replacement of 3,000 existing residential water meters that are at the end of their useful service lives. The proposed replacement meters will more accurately and precisely measure water usage and reduce the level of nonrevenue water resulting from inaccurate measurement of customer usage.

22. In accordance with KRS 424.260, Estill District published in the *Estill County Tribune* on January 6, 2021 and in the *Citizens Voice and Times* on January 7, 2021 an advertisement for bids on the portion of the Phase 11 Project concerning the replacement of existing stream crossings and the purchase and installation of metering and telemetry equipment. A copy of each advertisement is attached to this Application as **Exhibit 7 and Exhibit 8**.

23. On January 21, 2021, Estill District's Board of Commissioners received and opened four bids. The bid of Roe Enterprises, Inc., doing business as Swartz Pipeline Contracting, of Mount Sterling, Kentucky, which was \$744,420, was the lowest submitted bid. A copy of the certified bid tabulations is attached as **Exhibit 9** to this Application. A copy of the Project Engineer's recommendation regarding the submitted bids is attached as **Exhibit 10**.

24. After review of these bids, Estill District's Board of Commissioners adopted a Resolution awarding a contract for replacement of existing stream crossings and the purchase and installation of metering and telemetry equipment to Roe Enterprises, Inc., contingent upon receipt of a favorable recommendation regarding its bid from the Project Engineer and an Order from the Commission authorizing Estill District to enter an Assistance Agreement for KIA Loan F20-13, and issuing a certificate of public convenience and necessity for the replacement of existing stream crossings and the purchase and installation of metering and telemetry equipment. This Resolution is attached as **Exhibit 11** of this Application.

D. Certificate of Public Convenience and Necessity

25. Estill District restates and incorporates the information contained in paragraphs 8 through 24 of this Application.

26. The proposed facilities to be purchased, installed or constructed are: (1) six 6-inch Sensus Omni meters, four 4-inch Sensus Omni meters, one 12-inch full insertion magnetic flow meter and six 6-inch full insertion magnetic flow meters; (2) 900 linear feet of 6-inch high density polyethylene water line replacements at four stream crossings; (3) telemetry equipment at the 17 sites at which zone meters are installed.

27. The Kentucky Division of Water (“KDOW”) has reviewed the plans and specifications for the proposed stream crossings and has approved them with respect to sanitary features of design. A copy of the letter in which the KDOW stated its approval is set forth at **Exhibit 12** of this Application.

28. The KDOW has also reviewed for accuracy and completeness the plans and specifications of the proposed stream crossings and the installation of the metering and telemetry equipment and has approved them. A copy of the letter in which the KDOW stated its approval is set forth at **Exhibit 13** of this Application.

29. A description of the proposed facilities’ location is attached as **Exhibit 14** to this Application. The proposed meter and telemetry equipment will be located throughout Estill County, Kentucky. The proposed stream crossings are located in southwest portion of Estill District’s territory. A map depicting the general location of the proposed facilities is found at page 2 of 11 of **Exhibit 15** of the Application.

30. The proposed facilities will not compete with those of another public utility. Their construction and installation will not result in the wasteful duplication of utility facilities or inefficient investment.

31. A copy of the plans for the proposed facilities is attached to this Application as **Exhibit 15**. A copy of the contract specifications is attached to this Application as **Exhibit 16**. The specifications for the metering equipment are attached as **Exhibits 17A and 17B**.

32. A copy of the permit for the excavation of public rights-of-way under the jurisdiction of the Kentucky Department of Highways for those portions of the proposed facilities that will be located within such rights-of-way is found at **Exhibit 18** of this Application. Certification of Estill District's authorization to use county road rights-of way for the proposed facilities is found at **Exhibit 19**.

33. All easements required for the construction and installation of the proposed stream crossings have been acquired. A copy of these easements is attached as **Exhibit 20** to this Application.

34. The total estimated cost of the first stage of Phase 11 is \$1,020,420. The Project Engineer's Opinion of Probable Costs is attached as **Exhibit 21** to this Application. Estill District proposes to finance this cost with a loan of \$2,399,450 from KIA's Fund F Infrastructure Revolving Loan Program.

35. A Statement of Annual Cost of Proposed Facilities is attached as **Exhibit 22** to this Application. There is no expected additional annual cost for the operation of the proposed facilities. Estill District anticipates potential savings of \$7,983 from the operation of the proposed facilities.

36. Construction of the proposed facilities is estimated to be substantially completed within 90 days of the start of construction. Final completion of the proposed facilities is expected within 120 days of the start of construction.

E. Authorization to Enter Assistance Agreement

37. Estill District restates and incorporates the information contained in paragraphs 9 through 36 of this Application.

38. A description of Estill District’s water system and its property, stated at original cost by accounts, is contained in *Annual Report of Estill County Water District No. 1 to the Public Service Commission for the Year Ending December 31, 2019* (“2019 Annual Report”), a copy of which Estill District has previously been filed with the Public Service Commission and which is incorporated by reference into this Application.

39. Estill District does not propose to issue any stock or bonds.

40. To finance the cost of both stages of Phase 11, Estill District proposes to enter an Assistance Agreement for KIA Loan 20-13 to borrow an amount not to exceed \$2,399,450.

a. KIA Loan F20-13 will bear interest at a rate of 0.5 percent per annum and must be repaid over a period not to exceed 30 years from the date on which the Phase 11 Facilities begin operation. In addition to interest, Estill District will pay an administrative fee of 0.25 percent of the outstanding loan balance payable as part of each loan payment.

b. Interest on the proposed loan will accrue from the time that Estill District begins drawing funds from KIA. Principal and interest payments must be made at six-month intervals in the months of June and December, with the first payment made within twelve months of the proposed facilities’ initial operation.

c. KIA Loan F20-13 will be secured by a pledge of Estill District’s revenues.

d. **KIA proposes to credit to the loan balance fifty percent of the principal amount of the loan up to \$1,000,000 upon release of liens on all contracts and disbursement of the final draw request by KIA to Estill District.**

e. Additional details regarding KIA Loan F20-13 are set forth in the Conditional Commitment Letter of December 6, 2019, a copy of which is attached as **Exhibit 23**.

f. Under the terms of Conditional Commitment Letter, Estill District was required to meet the conditions for KIA Loan F20-13 and enter an Assistance Agreement with KIA no later than December 4, 2020. On February 3, 2021, KIA extended the period for meeting these conditions until June 3, 2021. A copy of the letter in which KIA granted this extension is attached as **Exhibit 24** of this Application.

41. No proceeds from the Assistance Agreement will be used to refund outstanding obligations.

42. A copy of the proposed debt service schedule is attached to this Application as **Exhibit 25**.¹⁶

43. A copy of Estill District's written notification to the State Local Debt Officer is attached as **Exhibit 26**.

44. Pursuant to 807 KAR 5:001, Section 18(2)(a), the following information is provided:

a. For the 12-month period ending December 31, 2019, Estill District had less than \$5,000,000 in gross annual revenues.

b. The *2019 Annual Report* is incorporated by reference into this Application.

¹⁶ This exhibit assumes that the first principal and interest payment will be in December 2021.

c. No material changes have occurred in Estill District's financial condition since December 31, 2019.

45. There are no trust deeds or mortgages applicable.

46. Maps and plans of the proposed construction are attached as **Exhibit 15** of this Application.

47. A detailed estimate of the acquired property, arranged according to the Uniform System of Accounts for Class A/B Water Districts and Associations, is attached to this Application as **Exhibit 27** of this Application.

48. The proposed loan will not require Estill District to seek an immediate adjustment of its rates for service. If the Commission so authorizes, Estill District will use Water Loss Surcharge proceeds to service the debt payments required under the proposed Assistance Agreement.

49. Upon approval of this Application and execution of the Assistance Agreement, Estill District will immediately draw down and use \$1,020,420 of the authorized loan to fund the first stage of the Phase 11 Project. It will not draw down any additional funds from KIA Loan F20-13 until the Commission has granted a certificate of public convenience and necessity for the second stage of the Phase 11 Project.

50. Estill District's execution of an Assistance Agreement with KIA to borrow \$2,399,450 is for a lawful objective within Estill District's corporate purposes, is necessary, appropriate for and consistent with Estill District's proper performance of its service to the public and will not impair Estill District's ability to perform that service and is reasonably necessary and appropriate for such purpose.

**F. Authorization to Disburse Surcharge Proceeds
For Assistance Agreement Payments**

51. In its Order of August 29, 2019 in Case No. 2019-00176, the Commission authorized Estill District to assess the Water Loss Surcharge, but expressly directed that the proceeds be placed in a separate interest-bearing account and that no disbursements be made from this account prior without prior Commission's approval.¹⁷

52. Estill District proposes to use a portion of the annual revenues from the Water Loss Surcharge to service the debt on KIA Loan F20-13. This use is consistent with the Water Loss Surcharge's stated purpose.

a. The Commission's issuance of a certificate of public convenience and necessity constitutes the Commission's determination that the proposed Phase 11 Project is necessary, will not result in wasteful duplication of facilities or inefficient investment, and is an appropriate expenditure for water loss control efforts.

b. Similarly, Commission authorization to enter the proposed Assistance Agreement represents the Commission's determination that the use of the proceeds of the Assistance Agreement for the Phase 11 Project, which is intended to reduce Estill District's water loss, is reasonable and necessary.

c. Accordingly, the use of Water Loss Surcharge proceeds to retire the debt represented by the Assistance Agreement is an appropriate use of those proceeds to reduce Estill District's water loss.

53. If the Commission issues a Certificate for both stages of the proposed Phase 11 Project and authorizes Estill District to execute the proposed Assistance Agreement with KIA, it should grant a blanket authorization to Estill District to disburse to KIA or KIA's designated agent

¹⁷ Case No. 2019-00176, Order of August 29 at 10.

from the account containing the Water Loss Surcharge proceeds the amounts necessary to make the semi-annual debt service payments under the proposed Assistance Agreement. Such authorization will eliminate the need for Estill District to obtain separate Commission approval of each scheduled principal and interest payment.

54. The Water Loss Surcharge Account has adequate funds to meet KIA Loan F20-13's debt service requirements. As of February 10, 2021, Estill District has retained Water Loss Surcharge proceeds (plus accrued interest) of \$215,185.60.¹⁸ The Water Loss Surcharge currently produces \$156,647 in annual revenue. The average annual debt service payment for the loan is \$52,114.70.

55. Notwithstanding the issuance of the requested blanket authorization, the Commission can continue to monitor the amounts disbursed from the surcharge accounts since Estill District will continue to submit monthly activity reports reflecting the amounts disbursed from the surcharge accounts and the purpose of each disbursement.

G. Request for Expedited Review

56. Estill District must act on the submitted bids for the construction of the proposed facilities no later than . After that date, each contractor has the right to withdraw its bid. To ensure the orderly selection of the most favorable bid, Estill District District requires a final decision on this application no later than **April 16, 2021**.

H. Conclusion

WHEREFORE, Estill County Water District No. 1 requests that the Commission:

1. Place this Application at the head of the Public Service Commission's docket as KRS 278.300(2) requires;

¹⁸ See Letter from Audrea B. Miller, General Manager, Estill District, to Kentucky Public Service February 15, 2021) (filed in Case No. 2019-00119).

2. Grant Estill District a Certificate of Public Convenience and Necessity to construct the Proposed Facilities;

3. Authorize Estill District to enter and execute an Assistance Agreement with KIA for KIA Loan F20-13 to borrow an amount not to exceed \$2,399,450, subject to an adjustment of up to 10 percent;

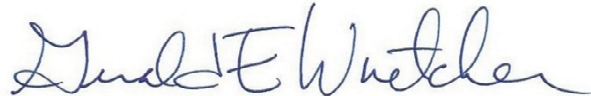
4. Authorize Estill District to disburse to KIA or KIA's designated agent from the account containing the Water Loss Surcharge proceeds the amounts necessary to make the debt service payments under the proposed Assistance Agreement at the times prescribed by the Assistance Agreement;

5. Enter an Order granting the requested relief without holding an evidentiary hearing in this matter and no later **than April 16, 2021**; and,

6. Grant any and all such other relief to which Estill District may be entitled.

Dated: February 22, 2021

Respectfully submitted,




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Counsel for Estill County Water District No. 1

COMMONWEALTH OF KENTUCKY)
) SS
COUNTY OF ESTILL)

The undersigned, Audrea Miller, being duly sworn, deposes and states that she is the General Manager of Estill County Water District No. 1, the Applicant in the above proceedings; that she has read this Application and has noted its contents; that the same is true of her own knowledge, except as to matters which are therein stated on information or belief, and as to those matters, she believes same to be true.

IN TESTIMONY WHEREOF, witness the signature of the undersigned on this February 22, 2021.



Audrea Miller
General Manager
Estill County Water District No. 1

Subscribed and sworn to before me by Audrea Miller, General Manager, Estill County Water District No. 1, on this February 22, 2021.



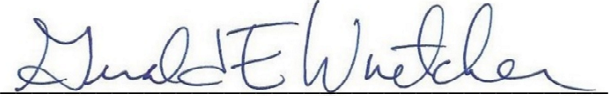
Notary Public

Notary ID: 624697

My Commission Expires: JUNE 25 2023

CERTIFICATE OF SERVICE

In accordance with 807 KAR 5:001, Section 8, I certify that Estill County Water District No. 1's electronic filing of this Application is a true and accurate copy of the same document being filed in paper medium; that the electronic filing was transmitted to the Public Service Commission on February 22, 2021; that there are currently no parties that the Public Service Commission has excused from participation by electronic means in this proceeding; and that within 30 days following the termination of the state of emergency declared in Executive Order 2020-215, this Application in paper medium will be delivered to the Public Service Commission

A handwritten signature in blue ink, appearing to read "Gerald E. Wuetcher", is written over a horizontal line.

Gerald E. Wuetcher

FILING REQUIREMENTS

FILING REQUIREMENTS FOR AN APPLICATION FOR A AUTHORITY TO ISSUE EVIDENCES OF INDEBTEDNESS

Source Authority	Requirement	Location
807 KAR 5:001, § 14(1)	Applicant's name, mailing address and e-mail address	Page 2, Para 1
807 KAR 5:001, § 14(1)	Statutory Reference – KRS 278.300	Page 1
807 KAR 5:001, § 4(3)	Signature of Applicant's Attorney	Page 16
807 KAR 5:001, § 4(3)	Name, Address, Telephone Number, Fax Number, and e-mail address of Applicant's Attorney	Page 16
807 KAR 5:001, § 14(2)	If Applicant is corporation: State and date of incorporation, attestation of good standing in state of incorporation, statement regarding authorization to transact business in Kentucky	Page 2, Para 3 Not Applicable
807 KAR 5:001, § 14(3)	If Applicant is a limited liability company: State and date of organization, attestation of good standing in state of incorporation, statement regarding authorization to transact business in Kentucky	Page 2, Para 3 Not Applicable
807 KAR 5:001, § 14(4)	If the Applicant is a limited partnership: a certified copy of limited partnership agreement and all amendments or statement identifying prior Commission proceedings in which limited partnership agreement and all amendments filed	Page 2, Para 3 Not Applicable
KRS 278.300(2)	Application is made under oath and signed on utility's behalf by its president, or by a vice president, auditor, comptroller or other executive officer having knowledge of the matters set forth and duly designated by the utility	Page 17
807 KAR 5:001, § 18(1)(a)	Information required by 807 KAR 5:001, § 14	See Above
807 KAR 5:001, § 18(1)(b)	Description of Applicant's property and the field of its operation	Page 11, Para 38
807 KAR 5:001, § 18(1)(c)	Description of amount and kinds of stock to be issued	Page 11, Para 39 Not Applicable
807 KAR 5:001, § 18(1)(c)	Description of amount, terms and interest rate of bond or note	Pages 11-12, Para 40
807 KAR 5:001, § 18(1)(c)	Description of how bond or note will be secured	Page 11, Para 40c
807 KAR 5:001, § 18(1)(d)	Statement of how proceeds are to be used	Page 6, Para 18 Page 7, Paras 19-21 Page 9, Para 26 Page 11, Para 40

Source Authority	Requirement	Location
807 KAR 5:001, § 18(1)(e)	If proceeds will be used to acquire, construct, improve, or extend property: a detailed description of property and all contracts	Page 6, Para 18 Page 7, Paras 19-21 Page 9, Para 26
807 KAR 5:001, § 18(1)(f)	Requirements if proceeds are to refund outstanding obligations	Page 12, Para 41 Not Applicable
807 KAR 5:001, § 18(1)(g)	Applicant's written notification to state local debt officer regarding proposed issuance	Page 12, Para 43 Exhibit 26
807 KAR 5:001, § 18(2)(a) 807 KAR 5:001, § 12(1)(b)	Financial Exhibit	Page 13, Para 45
807 KAR 5:001, § 18(2)(b)	Copies of trust deeds or mortgages	Page 12, Para 38
807 KAR 5:001, § 12(2)(c)	If property acquired: maps and plans of property	Page 10, 31 Exhibits 15 - 17
807 KAR 5:001, § 12(2)(c)	If property acquired: detailed estimates by USoA account number	Page 13, Para 47 Exhibit 27

FILING REQUIREMENTS

FILING REQUIREMENTS FOR AN APPLICATION FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY

Source Authority	Requirement	Location
807 KAR 5:001, § 14(1)	Applicant's name, mailing address and e-mail address	Page 2, Para 1
807 KAR 5:001, § 14(1)	Statutory Reference – KRS 278.020(1)	Page 1
807 KAR 5:001, § 4(3)	Signature of Applicant's Attorney	Page 16
807 KAR 5:001, § 4(3)	Name, Address, Telephone Number, Fax Number, and e-mail address of Applicant's Attorney	Page 16
807 KAR 5:001, § 14(2)	If Applicant is corporation: State and date of incorporation, attestation of good standing in state of incorporation, statement regarding authorization to transact business in Kentucky	Page 2, Para 3 Not Applicable
807 KAR 5:001, § 14(3)	If Applicant is a limited liability company: State and date of organization, attestation of good standing in state of incorporation, statement regarding authorization to transact business in Kentucky	Page 2, Para 3 Not Applicable
807 KAR 5:001, § 14(4)	If the Applicant is a limited partnership: a certified copy of limited partnership agreement and all amendments or statement identifying prior Commission proceedings in which limited partnership agreement and all amendments filed	Page 2, Para 3 Not Applicable
807 KAR 5:001, § 15(2)(a)	The facts relied upon to show that the public convenience and necessity requires the proposed construction	Pages 3-5, Paras 9-14 Pages 6-7, Paras 18-20 Exhibit 4
807 KAR 5:001, § 15(2)(b)	Copies of franchises or permits for the proposed construction or extension	Page 9, Paras 27-28 Page 10, Paras 32-33 Exhibits 18-20
807 KAR 5:001, § 15(2)(c)	A full description of the proposed location, route, or routes of the proposed construction or extension, including a description of the manner in which same will be constructed, and the names of all public utilities, corporations, or persons with whom the proposed construction or extension is likely to compete	Page 9, Para 29 Page 10, Para 30 Exhibits 14-15

Source Authority	Requirement	Location
807 KAR 5:001, § 15(2)(d)(1)	Maps to suitable scale showing the location or route of the proposed construction or extension, as well as the location to scale of like facilities owned by others located anywhere within the map area with adequate identification as to the ownership of the other facilities	Page 9, Para 29 Exhibit 15
807 KAR 5:001, § 15(2)(d)(2)	Plans and specifications and drawings of the proposed plant, equipment, and facilities	Page 10, Para 31 Exhibits 15-17
807 KAR 5:001, § 15(2)(e)	The manner in detail in which the Applicant proposes to finance the proposed construction or extension.	Page 10, Para 34 Exhibit 21
807 KAR 5:001, § 15(2)(f)	An estimated annual cost of operation after the proposed facilities are placed into service	Page 10, Para 34 Exhibit 21
KRS 322.340	Engineering plans, specifications, drawings, plats and reports for the proposed construction or extension prepared by a registered engineer, must be signed, sealed, and dated by an engineer registered in Kentucky	Page 10, Para 31 Exhibit 15

EXHIBITS

TABLE OF EXHIBITS

<u>Exhibit No.</u>	<u>Description</u>
1	Order of Estill County Court Establishing Estill County Water District No. 1 (Dec. 30, 1960)
2	Order of Estill County Court Merging Estill County Water District No. 1 and Estill County Water District No. 2 (Jan. 1, 1978)
3	A Resolution of the Board of Commissioners of Estill County Water District No. 1 Authorizing an Application to the Kentucky Public Service Commission for Authorization to Issue an Evidence of Indebtedness, for A Certificate of Public Convenience and Necessity and Other Relief as Necessary
4	Bell Engineering, <i>Comprehensive Corrective Action Plan for Estill County Water District No. 1</i> (May 2019 (filed separately))
5	Minutes of the December 5, 2019 Meeting of the Board of Directors of the Kentucky Infrastructure Authority
6	Notice to Obligate
7	Proof of Publication of Notice of Advertisement for Bids in <i>Estill County Tribune</i> on January 6, 2021
8	Proof of Publication of Notice of Advertisement for Bids in <i>Citizen Voice and Times</i> on January 7, 2021
9	Certified Bid Tabulations
10	Project Engineer's Recommendation
11	A Resolution of the Board of Commissioners of Estill County Water District No. 1 Awarding A Contract for the Purchase and Installation of Metering Equipment and Telemetry Upgrades and the Construction of Stream Crossings
12	KDOW Approval of Proposed Facilities with Respect to Sanitary Features of Design (Aug. 3, 2020)
13	KDOW Approval of Proposed Facilities with Respect to Completeness and Accuracy (Nov. 19, 2020)
14	Description of Proposed Facilities' Location
15	Drawings/Plans for the Proposed Facilities

<u>Exhibit No.</u>	<u>Description</u>
16	Contract Specifications
17	Metering Equipment Specifications
17A	Sensus Omni Turbo Water Meter – Data Sheet
17B	Sensus Omni Turbo Water Meter – Specifications
18	Kentucky Department of Highways Encroachment Permit
19	Certified Right-of-Way Site Plan
20	Acquired Easements for Stream Crossings
21	Project Engineer’s Opinion of Probable Cost
22	Statement of Annual Cost of Operations
23	Conditional Commitment Letter of December 6, 2019
24	Letter of February 4, 2021 Granting an Extension of Time in which to meet Loan Conditions
25	Debt Amortization Schedule
26	Notice to State Local Debt Officer
27	Detailed Estimate of Acquired Property, Arranged According to the Uniform Systems of Accounts for Class A/B Water Districts and Associations

EXHIBIT 1

No. _____

ESTILL COUNTY COURT

PETITION OF RUSSELL McCLANAHAN, JR., et al.

ORDER ESTABLISHING WATER DISTRICT
TO BE KNOWN AS
ESTILL COUNTY WATER DISTRICT NO. 1.

WHEREAS, there has heretofore been filed a Petition by the above named petitioner and other freeholders and residents of an area lying in Estill County, Kentucky, for the creation of a water district, that same be named ESTILL COUNTY WATER DISTRICT NO. 1, pursuant to Chapter 74 of the Kentucky Revised Statutes, and

WHEREAS, a Notice of the filing of such Petition was duly published in compliance with all legal requirements, and

WHEREAS, a period of thirty days has expired after the publication of such Notice, during which time all residents of the proposed district had an opportunity to file objections, and

WHEREAS, the Court within the ten day period following the expiration of said thirty day period, set the case for hearing on the 30th day of December, 1960, at 10:00 A.M., and

WHEREAS, notice of such hearing was duly published in compliance with all legal requirements, and

WHEREAS, the Court has found and does hereby find that the establishment of such district is reasonably necessary for the public health, convenience, fire protection and comfort of the residents within the area described in the Petition as being the area sought to be established as said water district, and

WHEREAS, the Court has determined and does hereby determine, that such Petition was signed by at least seventy-five

(75) resident freeholders of the proposed district, as required by law,

NOW, THEREFORE, it is hereby ordered that there be and there is hereby established a water district which shall be designated by the name of "Estill County Water District No. 1". It is further ordered that the boundaries of said district shall be and they are hereby designated to be as follows:

Beginning at a point in the centerline of the Kentucky River said point also being in the centerline of the roadway designated as Ky. Highway 52 and 89; thence with the centerline of the Kentucky River in a north-westerly direction to a point in the centerline of said river which is located due East from the Sand Hill School thence due West approximately 3900 feet to said school thence in a Westerly direction approximately 5700 feet from and parallel to the centerline of Kentucky Highway 52 to the Estill County-Madison County line; thence in a southerly direction with said county line in a point located 5000 feet in a southerly direction from the centerline of Kentucky Highway 52; thence in an easterly direction 5000 feet from and parallel to Kentucky Highway 52 to Hoys Fork; thence with Hoys Fork in a southerly direction to Crooked Creek; thence with Crooked Creek in an easterly direction to Station Camp Creek; thence due east approximately 8200 feet to the Sugar Hollow Creek; thence with the Sugar Hollow Creek in a northerly direction to the centerline of the Kentucky River; thence with the centerline of said river to the beginning.

Entered this the 30th day of December, 1960.

[Handwritten Signature]

JUDGE OF THE ESTILL COUNTY COURT

CERTIFICATE OF COUNTY CLERK

It is hereby certified that the foregoing is a true copy of such instrument duly filed in my office on this 9th day of January, 1961.

Maggie Hoffmeyer

County Clerk of Estill County, Kentucky

EXHIBIT 2

154

ORDERS

COURT

Term, Day, Day of 19

Form O-7-T

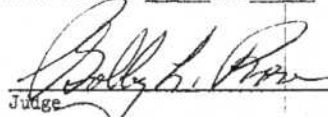
Estill County Court
Probate Division

IN RE: Final Settlement
Imo Noland, Incompetent

Estill County, Kentucky

ORDER

On the motion of the Committee herein for the filing of the Final Settlement on behalf of the above-named Incompetent; that same has been held over for a period of not less than 30 days to allow for exceptions and no exceptions being taken thereto, and this filing being acceptable to this Court, IT IS HEREBY ORDERED that the foregoing filing of the Final Settlement is hereby approved and further that the Committee be discharged for the liability upon this confirmation; further, that such bond required be discharged as satisfied by this Court; further, said Final Settlement and Order be recorded in SETTLEMENT BOOK NO. 6 PAGE 88 in my said office.


Judge

29 December 1977
Date Signed

*CCO Book 2
Pg 8454-8455*

ESTILL COUNTY COURT

ORDER MERGING ESTILL COUNTY WATER DISTRICT NO. 1 AND ESTILL COUNTY WATER DISTRICT NO. 2 TO BE KNOWN AS ESTILL COUNTY WATER DISTRICT NO. 1.

WHEREAS, there has heretofore been filed a Joint Petition by the Commissioners of Estill County Water District No. 1 and the Commissioners of Estill County Water District No. 2, for the purpose to merge the said Water Districts, that same be named ESTILL COUNTY WATER DISTRICT NO. 1, pursuant to Chapter 74 of the Kentucky Revised Statutes, and

WHEREAS, a Notice of the filing of such Joint Petition was duly published in compliance with all legal requirements, and

WHEREAS, the Court within ten days period following the expiration of said thirty day period, set the case for hearing on Sunday, January 1, 1978, at 2:00 p.m., local time, at the Estill County Courthouse, Circuit Courtroom, Irvine, Estill County, Kentucky, 40336, and

WHEREAS, Notice of such hearing was duly published in compliance with all legal requirements, and

WHEREAS, the Court has found and does hereby find that the merger of said Water Districts is reasonably necessary for the public health, convenience, fire protection and comfort of the residents within the area described in the Joint Petition as being the area sought to be

Term,

Day,

Day of

19

Form 0-7-T

It is FURTHER ordered that the boundaries of the said merged Water Districts shall be and they are hereby designated to be as follows:

TRACT NO. I:

"Beginning at the Lee County Boundary line at the centerline of the Kentucky River; thence along the centerline of the Kentucky River in a Northwesternly direction to the centerline of the Kentucky River to the Madison County Boundary line; thence in a southernly direction along the Madison County boundary line to the Jackson County boundary line; thence in a Easternly direction along the Jackson County boundary line to the Lee County boundary line; thence in a Northeasternly direction along the Lee County boundary line to the beginning at the centerline of the Kentucky River; Estill County Water District No. 1, as enlarged shall include all of the territory in the Estill County, Kentucky, South of the Kentucky River."

TRACT NO. II:

"Beginning at a point in the centerline of the Kentucky Highway 89 where the bridge of Sweet Lick Creek crosses Highway 89 going in a Northeastern direction to a point on the Estill County, Powell County line known as Marble Yard. Following the Estill County, Powell County line to Red River, following Red River to where Red River enters into the Kentucky River. Following up the Kentucky River to a point on the Eastern side of the Kentucky River Northwest of Irvine. This is a point known as the old West Irvine Bridge embuttment. From there a straight line back to the starting point in the centerline of Highway 89 at Sweet Lick Bridge."

The hereinafter described tracts of real property is excepted and excluded from aforesaid described Tract No. II:

TRACT NO. 1: "Beginning at a point in a corner of the existing corporate limits of the City of Irvine, Kentucky, said point being 780 feet west of the center of Main Street; and 55 feet south of the centerline of Rice Street, if extended; thence north 74° 04' east 740 feet to a point; thence north 42° east 230 feet to a corner to Edgewood Estates, said corner being also in the east right-of-way line of Kentucky 89; thence with the northwest boundary of Edgewood Estates north 63° 56' east 213 feet; north 58° 19' east 28.6 feet; north 50° 09' east 58.4 feet; north 39° 15' east 715.8 feet; and north 54° 28' west 168.1 feet to a corner, said corner being the northern most corner of Edgewood Estates; thence with the northeast boundary of Edgewood Estates south 44° 53' east 789.5 feet to a corner, said corner being the eastern most corner of Edgewood Estates and in the north right-of-way line of a county road; thence with the county road right-of-way and Edgewood Estates south 47° 04' west 564.9 feet to a corner; thence leaving Edgewood Estates and crossing the county road and the property of C. T. Williams south 23° 30' east 770 feet to a corner between the Housing Commission property and Mrs. Bertha Wallace's property; said corner being a corner to the existing corporate limits of the City of Irvine, Kentucky; thence with the northern boundary of the Housing Commission property, said boundary being also the existing northern corporate limits of the City of Irvine, Kentucky west 132.88 feet; north 37.30 feet; west 295 feet to a corner between the lands of the Housing Commission and Irvine High School, said corner also in Sweet Lick Creek; thence in a westerly direction with the meanders of Sweet Lick Creek and the property of Irvine High School 700 feet to the east right-of-way line of Kentucky 89; thence in an Westernly direction with the meanders of Sweet Lick Creek and the property of Irvine High School, 700 feet to the East right-of-way line of Kentucky State Highway 89."

TRACT NO. 2: "Beginning at the City limits of Irvine, Estill County, Kentucky, being the northern section of the said City of Irvine; thence in an Northernly direction on Kentucky Highway 89 for a distance of two and two-tenth (2 2/10) miles, all real property on both sides of said Highway."

TRACT NO. 3: "Beginning at the intersection of Kentucky Highway No. 89 and Kentucky Highway No. 1705, known as the White Oak Road, and in Northeasternly direction on Kentucky Highway No. 1705 for a distance of three and three-tenth (3 3/10) miles, all real property on both sides of said Highway."

TRACT NO. 4: "Beginning at the intersection of Kentucky Highway No. 1705 and Kentucky Highway No. 794, known as the Dry Branch Road, and in a Northernly direction for a distance five tenth (.5) mile, all real property on both sides of said Highway."

TRACT NO. 5: "Beginning at the intersection of Kentucky Highway No. 1705 and Kentucky Highway No. 1058, known as the right fork of White Oak Road, and in a Southeasternly direction for a distance of six tenth (.6) mile, all real property on both sides of said Highway."

Entered this 1st day of January, 1978.

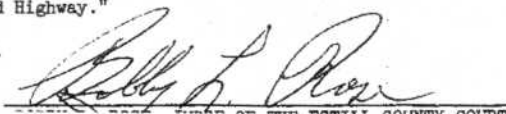


EXHIBIT 3

RESOLUTION NO. 2021-01-28-2

**A RESOLUTION OF THE BOARD OF COMMISSIONERS OF
ESTILL COUNTY WATER DISTRICT NO. 1 AUTHORIZING AN
APPLICATION TO THE KENTUCKY PUBLIC SERVICE
COMMISSION FOR AUTHORIZATION TO ISSUE AN EVIDENCE
OF INDEBTEDNESS, FOR A CERTIFICATE OF PUBLIC
CONVENIENCE AND NECESSITY AND OTHER RELIEF AS
NECESSARY**

WHEREAS, Estill County Water District No. 1 (“Estill District”) is a water district organized pursuant to the provisions of KRS Chapter 74;

WHEREAS, pursuant to KRS 278.015, the Kentucky General Assembly has declared that all water districts are “public utilities” and are subject to the regulation of the Kentucky Public Service Commission;

WHEREAS Estill District owns and operates facilities used to transport and distribute water to the public for compensation to serve the residents of Estill County, Kentucky;

WHEREAS, Estill District’s water distribution operations are subject to the jurisdiction and regulation of the Kentucky Public Service Commission;

WHEREAS, Estill District District proposes a series of improvements to its water distribution system known as “Phase 11 - System Improvements & Meter Purchase and Replacement Project,” at an estimated total cost of \$2,899,450;

WHEREAS, Estill District proposes to accomplish the Phase 11 - System Improvements & Meter Purchase and Replacement Project, the first phase of which involves the purchase and installation of 17 zone meters on existing water mains, improvements to its telemetry and replacement of four (4) stream crossings at an estimated total cost of \$1,020,420;

WHEREAS, Estill District proposes to finance the proposed project through a grant of \$500,000 from the Appalachian Regional Commission and a loan not to exceed \$2,399,450 from the Kentucky Infrastructure Authority payable over a 30-year period at an interest rate of 0.5 percent per annum and evidenced by an Assistance Agreement;

WHEREAS, KRS 278.020(1) prohibits a utility from constructing any facilities to be used to provide utility service, including those for the transmission and distribution of water to the public for compensation, without first obtaining a certificate of public convenience and necessity from the Kentucky Public Service Commission;

WHEREAS, KRS 278.300 prohibits a utility from issuing an evidence of indebtedness until it has been authorized to do so by an order of the Kentucky Public Service Commission;

WHEREAS, KRS 278.020(1) requires Estill District to obtain a certificate of public convenience and necessity from the Kentucky Public Service Commission prior to commencing

Phase 11 - System Improvements & Meter Purchase and Replacement Project or significant portions of that Project; and

WHEREAS, KRS 278.300 requires Estill District to obtain authorization from the Kentucky Public Service Commission prior to executing its proposed Assistance Agreement with the Kentucky Infrastructure Authority;

NOW, THEREFORE, IT IS HEREBY RESOLVED BY THE BOARD OF COMMISSIONERS OF ESTILL COUNTY WATER DISTRICT NO. 1AS FOLLOWS:

Section 1. The facts, recitals, and statements contained in the foregoing preamble of this Resolution are true and correct and are hereby affirmed and incorporated as a part of this Resolution.

Section 2. The General Manager, all appropriate Staff, and Estill County Water District No. 1's attorney are hereby further authorized and directed to take any and all actions to apply to the Kentucky Public Service Commission for authorization for Estill County Water District No. 1 to execute an Assistance Agreement with the Kentucky Infrastructure Authority to borrow an amount not to exceed \$2,899,450 and payable over a 30-year period at an interest rate of 0.5 percent per annum, for a certificate of public convenience and necessity to construct the initial phase of the Phase 11 - System Improvements & Meter Purchase and Replacement Project and to apply for such other relief as appropriate and necessary to ensure that Estill County Water District No. 1 is acting in accordance with the requirements of KRS Chapter 278.

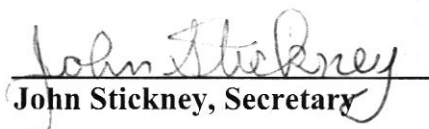
Section 3. This Resolution shall take effect upon its adoption.

ADOPTED BY THE BOARD OF COMMISSIONERS OF ESTILL COUNTY WATER DISTRICT NO. 1 at a meeting held on January 28, 2021, signed by the Chairman, and attested by the Secretary.



D. Blain Click, Chairman

ATTEST:

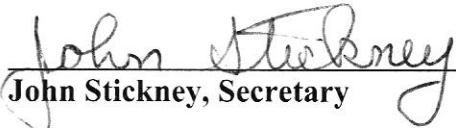


John Stickney, Secretary

CERTIFICATION

The undersigned Secretary of Estill County Water District No. 1 ("the District") does hereby certify that the foregoing is a true copy of a Resolution duly adopted by the District's Board of Commissioners at a meeting properly held on January 28, 2021, signed by the Chairman of the Board of Commissioners, attested by the Secretary of the Board of Commissioners, and is now in full force and effect.

WITNESS my hand this 28th day of January 2021.



John Stickney, Secretary

EXHIBIT 4

PROVIDED AS SEPARATE DOCUMENT

EXHIBIT 5

KENTUCKY INFRASTRUCTURE AUTHORITY
Minutes of the Full Board

Meeting Date/Location: **December 5, 2019 – 1:00 p.m.**
 Kentucky Infrastructure Authority
 100 Airport Road, Third Floor, Frankfort

Members present:

Commissioner Sandra K. Dunahoo), Department for Local Government
Mr. Bruce Scott, (proxy for Secretary Charles Snavelly), Energy and Environment Cabinet
Mr. Claude Christensen, representing Kentucky League of Cities
Mr. Ron Lovan, Representing the Kentucky Section of the American Water Works Association
Mr. Jeb Pinney (proxy for Gwen Pinson, Executive Director), Public Service Commission
Mr. Bobby Aldridge (proxy for Interim Secretary Vivek Sarin), Cabinet for Economic Development
Mr. Russell Rose, representing Kentucky Rural Water Association
Mr. Kurt Stafford, representing the For-Profit Water Companies
Mr. David A. Voegelé, representing Kentucky Association of Counties

Members absent:

Secretary William Landrum), Finance and Administration Cabinet
Mr. Robert A. Amato, representing Kentucky Municipal Utilities Association

DLG Staff:

Ms. Suzanne Molley, Staff Attorney

KIA Staff:

Ms. Donna McNeil, Executive Director
Ms. Linda Bridwell, Deputy Executive Director
Ms. Ashley Adams, Financial Analyst
Mr. Jeff Abshire, Fiscal Officer and KIA Treasurer
Ms. Julie Bickers, Regional Compliance Coordinator
Mr. Kelly Cunnagin, Executive Staff Advisor
Ms. Kristie Dodge, Buffalo Trace Area Development District
Mr. Dustin Horn, WRIS Geoprocessing Specialist
Ms. Debbie Landrum, Regional Compliance Coordinator
Ms. Meg Link, Administrative Specialist III and KIA Secretary
Ms. Sarah Parsley, Regional Compliance Coordinator
Mr. Don Schierer, WRIS Resource Management Analyst
Ms. Meili Sun, Financial Analyst

Guests:

Mr. Jim Adams, Lincoln County Judge Executive
Mr. Ray Bascom, HMB Engineers
Mr. Luther Galloway, AGE Engineers
Mr. Tony Claunch, City of Somerset
Ms. Bethany Couch, Office of Financial Management
Mr. Kelly Gillespie, Bell Engineers
Mr. Steve Judy, Judy Construction Company
Mr. Patrick Kirby, CEDA, Inc.
Mr. Herb LeMaster, Tetra Tech
Ms. Karyn Leverenz, Bluegrass Area Development District

Mr. Ora Main, Nesbitt Engineering, Inc.
Mr. Greg Mains, Augusta Regional Sewer Authority
Mr. Charlie Martin, Lexington-Fayette Urban County Government
Ms. Audra Miller, Estill County Water District
Mr. Russell Neal, Division of Water
Mr. Paul Nesbitt, Nesbitt Engineering, Inc.
Mr. Bill Payne, Lincoln County Sanitation District
Mr. Bob Peterson, Lexington-Fayette Urban County Government
Mr. James Rowe, Northern Madison County Sanitation District
Mr. Chris Stewart, HMB Engineers
Mr. Jack Stickney, Estill County Water District
Mr. Elliott Turner, Northern Madison County Sanitation District
Ms. Julia Wang, Legislative Research Commission
Ms. Dana Whitis, City of Somerset

PROCEEDINGS

Commissioner Sandra K. Dunahoo, Chair, called the meeting of the Kentucky Infrastructure Authority (KIA) Board to order. She asked Suzanne Molley, DLG Staff Attorney, to confirm the press notification distribution as well as the presence of a quorum. Guests were asked to introduce themselves.

I. BUSINESS (Board Action Required)

A. 1. APPROVAL OF MINUTES

For: KIA Regular Board Meeting of November 7, 2019

Mr. Ron Lovan moved to approve the minutes of the November 7, 2019, regular board meeting. Mr. Russ Rose seconded, and the motion carried unanimously.

2. AWARDS PRESENTATION

Director Donna McNeil explained that USEPA has a program called Performance and Innovation in the SRF Creating Environmental Success (PISCES) program. It allows assistance recipients to gain national recognition for exceptional projects funded by the CWSRF. Participating state programs each nominated one project that demonstrates one or more of the evaluation criteria: water quality, public health, or economic benefits; sustainability; or Innovation

In 2018 there were 5 Nationally Recognized Projects and 11 Honorable Mention projects. KIA nominated the Lincoln County Sanitation District, which was recognized as a 2018 USEPA PISCES Honorable Mention recipient for the Junction City to Hustonville Sewer project. The project provided a sanitary sewage system to serve 535 residential customers and 50 commercial customers which had no sanitary sewer system. The project eliminated approximately 220 failing septic tanks, 100 raw sewage discharges, and 2 package treatment plants. An inadequate sewage package treatment plant was eliminated at the Hustonville Elementary School. The school was not able to operate its dishwasher because the package plant could not handle the load in addition to the rest rooms. Meals were served on Styrofoam trays with plastic utensils at a large cost to the school district.

The \$7.92 million project was funded by a KIA, US Rural Development, Community Development Block Grant, Appalachian Regional Commission, and local funds. Director McNeil presented representatives from the Lincoln County Sanitation District a certificate for their 2018 USEPA Pisces Award Honorable Mention to Chairman Bill Payne, Lincoln County Judge Executive Jim Adams, and Luther Galloway, AGE Engineering.

For the 2019 PISCES Recognition Program, at least one project was selected in each EPA Region resulting in 13 projects receiving Exceptional Project recognition. 17 states received Honorable Mention Recognition.

KIA's nomination received recognition again this year. The Lexington-Fayette Urban County Government was recognized as a 2019 USEPA PISCES Honorable Mention recipient from Region 4 for the West Hickman WWTP Wet Weather Storage and Head Works project.

The \$63.4 million project included construction a new mechanical screening and grit removal system, a facility odor control system, two non-potable water pumping stations, auxiliary power to operate the entire complex, a 20 million gallon above ground storage tank, and a 140 million gallon a day (MGD) pump station that allowed for the elimination of two smaller pump stations. The project provides future public sewer capacity in an area expected to see expansive development. Construction of these enhancements provides the City with the appropriate sewer capacity and eliminates the need for future private septic systems and additional wastewater treatment plants.

Director McNeil also presented a certificate for the 2019 USEPA Pisces Award Honorable Mention to representatives Bob Peterson and Charles Martin from the Lexington-Fayette Urban County Government; the project design lead Herb LeMaster representing Tetra Tech; and the prime contractor, Steve Judy, from Judy Construction Company.

B. NEW PROJECTS/ACTION ITEMS

1. A RESOLUTION AND ORDER OF THE BOARD OF DIRECTORS OF THE KENTUCKY INFRASTRUCTURE AUTHORITY AUTHORIZING AN AMENDMENT TO THE CONDITIONAL COMMITMENT FOR A FEDERALLY ASSISTED CLEAN WATER REVOLVING FUND A LOAN (A17-001) INCREASE FOR AN AMOUNT UP TO \$7,397,000 TO THE AUGUSTA REGIONAL SEWER AUTHORITY, BRACKEN COUNTY, KENTUCKY

Mr. Russell Neal, DOW, Ms. Ashley Adams, KIA, and Mr. Greg Mains, representing the Augusta Regional Sewer Authority (ARSA), discussed ARSA's request for a Fund A loan increase in the amount of \$1,100,000 for the Augusta/Brooksville Regional Sewer project. The original loan was approved by the KIA board in October 2017 in the amount of \$5,697,000 which will bring the new loan total to \$6,797,000. The reason for the increase is due to bids coming in higher than originally estimated. Specifically, the overage was due to an increase in pump pricing from the time of the engineer estimate until bidding occurred. Rejecting and rebidding this portion of the project is highly unlikely to produce a different outcome.

ARSA was established by ordinance in 2014 in an effort to regionalize wastewater treatment in an area of Bracken County which includes the Cities of Augusta and Brooksville and unserved citizens in the County between those cities. ARSA was created as a joint sewer agency pursuant to KRS 76.232. This project is the construction portion of a prior Planning and Design loan (A114-015) for \$600,000 by KIA which will help fund the creation of a new

Single Stage Activated Sludge Wastewater Treatment Plant (WWTP). This regional plant will serve the cities of Augusta, Brooksville, and Northern Bracken County based upon the recommendations of the Facilities Plan approved in 2010. The project will also construct a new outfall and four lift stations.

The existing WWTPs for both Augusta and Brooksville are in severe disrepair and will both be eliminated as a result of this project. In addition, a package treatment plant located at a nursing home in the county will be eliminated. The project will extend service to over 80 new customers in the county who were previously unserved with the potential to pick up more as Bracken County's population continues to grow.

In addition to those new customers, Augusta Regional Sewer Authority will serve approximately 775 existing residential customers as well as 2 commercial and industrial customers in Bracken County. At the time of the original project KIA extended \$1.3 million in principal forgiveness to help facilitate the project and was the first funding agency committed. Since then, USDA Rural Development has committed funds to the project in the form of a \$3.2 million loan and a \$2.8 million grant combination.

Mr. Bruce Scott thanks the ARSA staff for the continued work they have done, he noted it was not an easy thing to do, but the right thing to do for the betterment of the communities and Commissioner Dunahoo also mentioned Kristie Dodge and her assistance.

Mr. Greg Mains thanked KIA for their support through the long process of getting to this point.

Mr. Bruce Scott moved to approve the Fund A Loan, (A17-001), increase in an amount up to \$1,100,000 with the standard conditions. Judge David Voegelé seconded and the motion was unanimously approved.

2. A RESOLUTION AND ORDER OF THE BOARD OF DIRECTORS OF THE KENTUCKY INFRASTRUCTURE AUTHORITY AUTHORIZING ISSUANCE OF A CONDITIONAL COMMITMENT FOR A FEDERALLY ASSISTED CLEAN WATER REVOLVING FUND LOAN (A20-003) FOR AN AMOUNT UP TO \$3,406,500 TO THE LINCOLN COUNTY SANITATION DISTRICT, LINCOLN COUNTY, KENTUCKY

Mr. Russell Neal, DOW, Ms. Ashley Adams, KIA and Mr. Bill Payne, representing the Lincoln County Sanitation District, discussed District's request for a Fund A Loan, (A20-003), in an amount up to \$3,018,100 for the construction of the US 127 Corridor Sanitary Sewer project. Prior KIA planning and design loan A19-048 will be rolled into this loan for a total of \$3,406,500. This project is the second phase of a project to bring sanitary sewer to a section of Lincoln County that has seen rapid residential growth over the past few years but remains unserved by sanitary sewer. This second phase will complete service to virtually all subdivisions on the east and west side of US 127 from the Norfolk Southern Railroad, north to KY Hwy 1194 which includes approximately 363 homes both older and recently built.

Lincoln County Sanitation District currently serves approximately 412 customers with more expected to connect in the Phase 1 service area in the future along with the additional 363 Phase 2 customers. The District was established on May 10, 2011 by the Lincoln County Fiscal Court. It is governed by five directors who are appointed by the County Judge Executive and approved by the fiscal court. Connection to the public wastewater system is mandatory within four months of the date that a property owner is notified that service is available. The

District has received national recognition from US EPA for their accomplishments with Phase 1 of this project including an Honorable Mention for the 2018 PISCES award.

Mr. Ron Lovan moved to approve the Fund A Loan (A20-003) in an amount up to \$3, 018,100 with the standard conditions. Mr. Bruce Scott seconded and the motion was unanimously approved.

3. A RESOLUTION AND ORDER OF THE BOARD OF DIRECTORS OF THE KENTUCKY INFRASTRUCTURE AUTHORITY AUTHORIZING ISSUANCE OF A CONDITIONAL COMMITMENT FOR A FEDERALLY ASSISTED CLEAN WATER REVOLVING FUND A LOAN (A20-049) FOR AN AMOUNT UP TO \$730,000 TO THE NORTHERN MADISON COUNTY SANITATION DISTRICT, MADISON COUNTY, KENTUCKY

Mr. Russell Neal, DOW, Ms. Meili Sun, KIA, and Mr. Patrick Kirby, Community & Economic Development Associates, Inc. (CEDA), discussed the Northern Madison County Sanitation District's request for a Fund A loan in the amount of \$730,000 for the Boone Village Wastewater Collection System project.

The project proposes to install approximately 7,701 LF of gravity sewers, thirty-five manholes, two submersible pump stations, and approximately 4,700 LF of 4" diameter force main to collect and transport wastewater from 70 residential customers and 1 commercial establishment to the existing District system. The flow will ultimately be treated at the District's regional wastewater treatment plant. The purpose of this project is to eliminate sewage overflow caused by septic tanks and improve public health.

Upon completion of this project, the District will add 71 new customers to the 1,000 existing customers in Madison County.

Judge David Voegele asked about if there are additional customers coming, does that account for the \$1,200 decrease in debt per customer. Ms. Sun noted the District had been making the annual debt service payment each year. Mr. Paul Nesbitt stepped up and noted the increased customers and the additional debt service payments.

Mr. Ron Lovan asked about the flow from the project eventually going to the regional waste water plant. Will it automatically happen or is there additional work to be done? City officials noted everything was in place to do it automatically

Mr. Kurt Stafford asked about the anticipated 70 new customers that would be added on and if there potentially were more customers. City officials noted that there was a major construction project on Exit 95 and when it was completed, they expected there to be rapid growth, including a new school, and that lines are in place now for future customers.

Mr. Ron Lovan moved to approve the Fund A Loan (A20-049) in an amount up to \$730,000 to the Northern Madison County Sanitation District with the standard conditions. Mr. Bruce Scott seconded and the motion was unanimously approved.

4. A RESOLUTION AND ORDER OF THE BOARD OF DIRECTORS OF THE KENTUCKY INFRASTRUCTURE AUTHORITY AUTHORIZING ISSUANCE OF A CONDITIONAL COMMITMENT FOR A FEDERALLY ASSISTED DRINKING WATER REVOLVING FUND LOAN (F20-013) FOR AN AMOUNT UP TO \$2,399,450 TO THE ESTILL COUNTY WATER DISTRICT, ESTILL COUNTY, KENTUCKY

Mr. Russell Neal, DOW, Ms. Meili Sun, KIA, and Ms. Audrea Miller, representing the Estill County Water District, discussed the District's request for a Fund F loan in the amount of \$2,399,450 for the System Improvement and Meter Replacement project.

This project will implement improvements designed to help reduce unaccounted for water in the system. It will install flow metering and backflow prevention devices, develop a hydraulic model, and relocate or replace five substandard existing creek crossings. The ECWD has taken an active approach to minimizing unaccounted for water loss through pump stations and telemetry upgrades, valve replacements, installation of test meter assemblies within the system, utilization of leak detection services, and purchase of a hydraulic model for the system. The scope of work also includes purchase and installation of new residential meters throughout the service area. On site testing indicates that the current meters are rapidly reaching the end of the useful life and inaccurate in measuring low "trickle" flows. The ECWD is a PSC regulated system serving approximately 3,800 residential and commercial customers in Estill County. All rate changes related to retail and water purchase are subject to PSC approval.

Mr. Bruce Scott asked Mr. Neal what their hope was in reducing their water loss. City officials noted they hoped to get it down from 40% to 15%. PSC requires the District to do a Corrective Action Plan. Mr. Ron Lovan said they are to be commended that it is important to get water losses down. Mr. Lovan asked if they were replacing all residential meters and what were their plans for back flow prevention. It was noted that Estill County receives 90 of their water from IMU and interconnector goes under the Kentucky River and that has been problematic since it was built in the 1960s so they advised them to establish backflow prevention on their side of the river in case of failure at the River crossing. He believes it has already been put in place. Mr. Russ Rose asked if the meter replacements would be done in-house or if it would be contracted out. County officials noted it would be contracted out.

Mr. Bruce Scott moved to approve the Fund F Loan (F20-013) loan in an amount up to \$2,399,450 to the Estill County Water District with the standard conditions. Mr. Ron Lovan seconded and the motion was unanimously approved.

5. A RESOLUTION AND ORDER OF THE BOARD OF DIRECTORS OF THE KENTUCKY INFRASTRUCTURE AUTHORITY AUTHORIZING ISSUANCE OF A CONDITIONAL COMMITMENT FOR A FEDERALLY ASSISTED DRINKING WATER REVOLVING FUND LOAN (F20-019) FOR AN AMOUNT UP TO \$7,027,878 TO THE CITY OF SOMERSET, PULASKI COUNTY, KENTUCKY

Mr. Russell Neal, DOW, Ms. Meili Sun, KIA and Ms. Dana Whitis, representing the City of Somerset, discussed the City's request for a Fund F loan in the amount of \$7,027,878 for the Storage Tank, Booster Stations, and Water Main Extension project, which is consisted of 2 contracts. Contract 1 – Oak Hill Storage Tank Replacement, 5 MG Booster Station, and Water Main Extension will replace an existing one million gallon storage tank with a new one of the same storage capacity. It will also build a new booster pump station with 5 million gallon capacity and SCADA, add Variable Frequency Drives at the water treatment plant, and install an eight inch water main near the Lake Cumberland Regional Hospital to balance pressure in the system. Contract 2 – Valley Oak Industrial Park Water System improvements will construct a 1,000 gallon per minute water booster pumping station to facilitate filling of the Sugar Hill Water Storage Tank, install a new water mixing system in the same tank, reconfigure piping

that feeds the tank, and build a Chlorination Booster Station to improve water quality for the Valley Oak Industrial Park and Southeastern Water Association.

The City is a regional provider currently serving approximately 9,000 retail and 4 wholesale customers in Somerset and the surrounding area. Of the 4 wholesale customers, Southeastern Water Association and Western Pulaski County Water District are PSC regulated systems.

Mr. Kurt Stafford asked about the rates for outside the city and if they were residential customers or wholesale customers.

Mr. Bruce Scott moved to approve the Fund F Loan (F20-019) loan to the City of Somerset in an amount up to \$7,027,878 with the standard conditions. Mr. Russ Rose seconded and the motion carried unanimously.

6. A RESOLUTION OF THE KENTUCKY INFRASTRUCTURE AUTHORITY AUTHORIZING AND APPROVING THE ISSUANCE OF OBLIGATIONS OF THE KENTUCKY INFRASTRUCTURE AUTHORITY TO REIMBURSE CAPITAL EXPENDITURES MADE BY GOVERNMENTAL AGENCIES PURSUANT TO LOANS MADE BY THE KENTUCKY INFRASTRUCTURE AUTHORITY TO SUCH GOVERNMENTAL AGENCIES

This is a routine resolution allowing KIA to reimburse expenses that are paid out of the Authority’s funds with bond proceeds. The projects listed below are covered under this resolution:

BORROWER	FUND	AMOUNT UP TO
Augusta Regional Sewer Authority (Increase)	A17-001	\$1,100,000
Lincoln County Sanitation District (Construction)	A20-003	\$3,018,100
Northern Madison County Sanitation District	A20-049	\$ 730,000
Estill County Water District	F20-013	\$2,399,450
City of Somerset	F20-019	\$7,027,878

Mr. Ron Lovan moved to approve the reimbursement resolution. Mr. Bruce Scott seconded and the motion carried unanimously.

EXECUTIVE DIRECTOR’S REPORT

Director McNeil addressed the group noting the suggested 2020 board dates that had been sent out with the other Board meeting materials. All are suggested for the first or second Thursday, other than the September date that would be the final Thursday to review the audit. Commissioner Dunahoo asked if it would be advisable with the pending transition and several Board positions changing to hold off and finalizing dates at a later date. Mr. Kurt Stafford noted a January date would need to be set. Mr. Ron Lovan asked if they were the standard dates. Director McNeil noted that in years past, the regularly scheduled meetings were the first Thursday of each month. Last year, for quorum purposes, April, May and September were changed for spring and fall break as well as Derby in May. Director McNeil noted, it might be best to confirm January 9th as the next meeting and finalize the other dates at a later time. The By-Laws state the Board would set the dates for the following year at the December Board

meeting. If they are set and then changed, it will become a Special Called meeting. Mr. Ron Lovan suggested the January date be approved and confirmed, but to wait until January to set the additional 2020 meeting dates to avoid conflicts with new Board members' schedules.

Mr. Ron Lovan moved to approve Thursday, January 9th as the next regularly scheduled board Meeting. Mr. Bob Amato seconded and the motion was unanimously approved.

Director McNeil discussed the 2019 USEPA Aquarius recognition program for the Drinking Water State Revolving Fund, which began this year. KIA's nomination was selected to receive this national honor. On December 18th, the City of Danville is scheduled to be presented the USEPA Aquarius Excellence Recognition award for the water treatment plant and intake project. The presentation will be at the water treatment plant at 11:00 EST. Lunch is being served after a short presentation. This drinking water project was the first H2O Award recipient.

There are two other presentations coming in the next few weeks, the 2019 H2O Award recipient City of Fleming-Neon will be receiving their drinking water award on December 11th at the KRADD Board of Directors meeting in Hazard. The Regional Water Resource Agency will receive the 2019 H2O Award for a clean water project on Monday, December 16th at their Board of Directors meeting at 3:30 CST in Owensboro.

Staff attended the CIFA Conference and EPA SRF Workgroup meeting in Cleveland on November 17-20th. Staff presented the KIA dashboards and screens associated with the SRF program, including the loan management process, including project ranking. It was very well received. Director McNeil was elected to the CIFA Board of Directors.

KIA may be the recipient of another grant program, the Sewer Overflow Grant Program (SOG) to benefit SSO elimination. It will be used for sanitary sewer overflow, combined sewer overflows, especially if utility has a consent degree in place and also storm water overflow. This program was authorized in the American Water Infrastructure Act, both the House and Senate have funds set aside in their budget for this Act so EPA thinks we will be getting money. These funds will be allocated based upon the Clean Water SRF allocation formula, with some other things factoring in, including permeability, rainfall and other factors in addition to how the state gets their SRF.

This is also a look at the 2020 Water Resource Development Act and the Water Quality Protection and Job Creation Act both deal with the Clean Water SRF Program, looking at the authorization and reallocating of funds. We were recently told that Congress is looking at an allocation formula to change the way states are allocated funds based upon the Needs Survey, which has not been done in the past. So it will be very important in the next couple of years that the Drinking Water and Clean Water SRF Needs Survey are documented as well as we can to ensure Kentucky gets the most funds possible. Those funds for implementation, administration and possibly set-asides and also to support job creation in the industry for economic development. It unanimously passed the House Transportation Infrastructure Committee in October.

With the Drinking Water program, EPA has announced they will issue a deviation to the federal regulations, allowing water rights to be eligible for the program. Water rights by the standard definition are not a Kentucky or states east of the Mississippi, however USEPA is using a broader definition for the Drinking Water program which will involve storage capacity for existing population, disallowing growth.

KIA has filed their 2020 Budget, our operating expenses are going to be approximately \$3.2 million. KIA's operating expenses are funded from Restricted Funds – administrative loan fees (54%), the General Fund (33%) funds updates to WRIS and planning, and Federal Funds (13%) which includes both Federal loan programs.

The Capital Budget has been submitted requesting state match bond and Disadvantaged Community Drinking Water Grant. The 3 Grants equal around \$39 million with about \$8.8 carry over for FY 2021. State matching funds is 20% for the SRF. The Drinking Water SRF was increased, we are asking for an additional \$800,000 to fund a state match shortfall during 2020 for the additional capitalization grant funding. There was almost an \$11 million increase in funding.

We included leverage bonds, we do not expect to use it, but wanted it in place should the need arise. Our Capital Plan, includes the \$25 million request to increase the lending capacity of Fund B.

ANNOUNCEMENTS/NOTIFICATIONS

Commissioner Dunahoo announced that this was her final Board meeting and thanked the group for the services to the Board and wished everyone well. She said she would be returning back into the private sector to pursue other opportunities.

Mr. Bruce Scott also noted that this would be his last Board meeting. He would be leaving EEC as of Monday. He thanked Commissioner Dunahoo and Director McNeil for their service as well as the KIA and DOW staffs.

Mr. Ron Lovan thanked all for their service to the Commonwealth.

- Next scheduled KIA board meeting:
Thursday, January 9, 2020, 1:00 p.m.
100 Airport Road, Third Floor
Frankfort, Kentucky

There being no further business, Mr. Claude Christian moved to adjourn. Mr. Ron Lovan seconded and the motion carried unanimously. The December 5, 2019 meeting of the Board of the Kentucky Infrastructure Authority was adjourned.

Submitted by:


Margaret F. Link, Secretary
Kentucky Infrastructure Authority

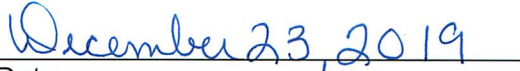

Date

EXHIBIT 6



Notice to Obligate

TO: Christopher McLean
U.S. Department of Agriculture, Rural
Development
Utilities Program
South Building, Room 5135-S
14th & Independence Avenue, SW
Washington, DC 20250
Attn: Lois East

CC: Karen Leadlove
U.S. Department of Agriculture, Rural
Development
Financial Accounting Branch
Bldg. 104 Post 48B
4300 Goodfellow Blvd.
St. Louis, MO 63120

Pursuant to the Appalachian Regional Development Act of 1965, as amended, the Appalachian Regional Commission has approved the referenced project under appropriation 46X0200. Rural Development has agreed to obligate and administer the grant under the Memorandum of Agreement between ARC and USDA.

ARC Project Number: KY-19847
Project Title: Estill Water District Meter Replacement Project
Grantee: Estill County Water District
Approved Funding:

ARC	\$500,000	17%
Local	\$2,399,450	83%
Total Project Cost	\$2,899,450	100%

Authorized USDA Administrative Charge: \$9,000

Approved:

Tim Thomas
Federal Co-Chair

Date

EXHIBIT 7

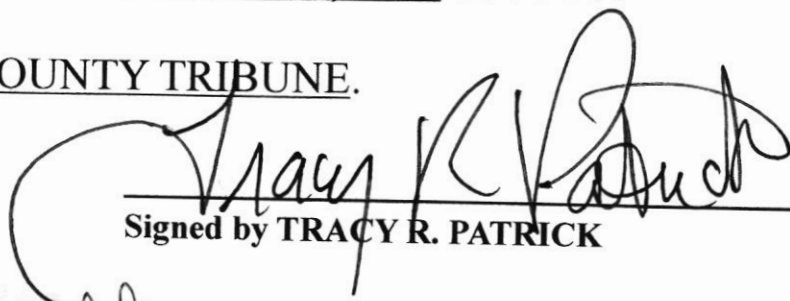
NOTARIZED PROOF OF PUBLICATION

STATE OF KENTUCKY

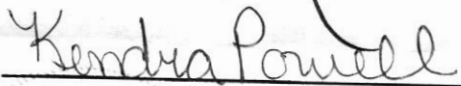
COUNTY OF ESTILL

Before me, a Notary Public, in and for said County and State, this
29th DAY OF JANUARY, 2021, came TRACY R. PATRICK,
personally known to me, who being duly sworn, states as follows:

That he/she is the OWNER of THE ESTILL COUNTY TRIBUNE
newspaper and the attached sheets show proof of publication for an
advertisement seeking bids by the ESTILL COUNTY WATER DISTRICT
that appeared in the JANUARY 27, 2021 edition of
THE ESTILL COUNTY TRIBUNE.

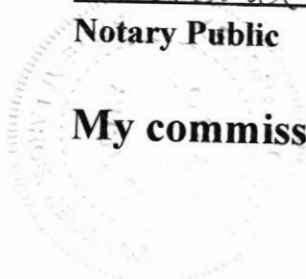


Signed by **TRACY R. PATRICK**



Notary Public

My commission expires 4-23-23



TIGER

by BUD BLAKE



Classifieds

or Giveaway, Call (606) 723-5012

Advertisement for Bids

**ADVERTISEMENT FOR BIDS
 CONTRACT 371-20-01
 WATER SYSTEM IMPROVEMENTS,
 PHASE 11—ZONE METER AND RIVER CROSSING INSTALLATION
 ESTILL COUNTY WATER DISTRICT NO. 1
 ESTILL COUNTY, KENTUCKY**

Sealed proposals for the following work will be received by the Estill County Water District No. 1, Estill County, Kentucky at the district office, until 10:00 a.m., local time, Thursday, January 21, 2021, for furnishing labor and materials and performing all work as set forth by the Advertisement, General Conditions, Specifications and/or Drawings prepared by Bell Engineering. Immediately following the scheduled closing time for the reception of bids, all proposals which have been submitted in accordance with the above conditions will be publicly opened and read aloud.

The work to be bid is described as follows:

CONTRACT 371-20-01

Water System Improvements, Phase 11—Installation of 17 zone meters on existing lines, telemetry upgrades and replacement of 4 stream crossings via directional drilling.

Drawings, Specifications and Contract Documents may be examined at the following places:

Estill County Water District No. 1
 76 Cedar Grove Road
 Irvine, Kentucky 40336

Bell Engineering
 2480 Fortune Drive, Suite 350
 Lexington, Kentucky 40509

or may be obtained from Lynn Imaging, 328 E. Vine Street, Lexington, Kentucky 40507, phone 859/255-1021,

CONTRACT 371-20-01--\$200.00 (Electronic or Hard Copy)

Sealed proposals for this Contract shall be clearly marked on the outside of the envelope as follows:

"Sealed Proposal for Contract 371-20-01. Not to be opened until 10:00 a.m., local time, Thursday, January 21, 2021."

If forwarded by mail, the sealed envelope containing the proposal must be enclosed in another envelope and mailed to the Estill County Water District No. 1, 76 Cedar Grove Road, Irvine, Kentucky 40336, allowing sufficient time for such mailing to reach this address prior to the scheduled closing time for receipt of proposals.

Bids shall be accompanied by a certified check or bid bond made payable to the Estill County Water District No. 1, in an amount not less than 5 percent of the total base bid indicated in Specification Section 00200, Instructions to Bidders, Bid Security. No bidder may withdraw his bid for a period of 90 days after the date bids are opened. He may, however, withdraw his bid at any time prior to the time and date scheduled for opening of same or any authorized postponement thereof. Any bid received after the time and date specified shall not be considered and will be returned unopened to the bidder. The expected construction time for this Project is 120 calendar days and the liquidated damages have been set at \$500.00.

The attention of all contractors is called to the fact that any contract awarded under this Advertisement for Bids is expected to be funded in part by a loan from the Kentucky Infrastructure Authority, Drinking Water State Revolving Fund and from a grant from the Appalachian Regional Commission (ARC).

The OWNER's share will be provided from current funds on hand.

Work to be performed by contractors involved in this project is subject to the minimum wage rates established by the U.S. Department of Labor under the provisions of the Davis Bacon Act.

State Revolving Fund requirements must be met by the bidder and all subcontractors.

Bidders must comply with the President's Executive Order Nos. 11246 and 11375, which prohibit discrimination in employment regarding race, creed, color, sex or national origin. Where the President's Executive Order No. 11246 is shown, Executive Order No. 11375 also applies.

Bidders must make positive efforts to secure small, minority owned, and/or disadvantaged business enterprise participation in this Project.

Bidders must comply with Title VI of the Civil Rights Act of 1964, the Anti Kickback Act, and the Contract Work Hours Standard Act.

Bidders must certify that they do not and will not maintain or provide for their employees any facilities that are segregated or based on race, color, creed, or national origin.

Bidders must show a certification of prior work under Executive Order 11246 (Equal Employment Opportunity) as amended.

All contractors and subcontractors must comply with 41 CFR 60-4, in regard to affirmative action. This is to ensure equal opportunity to females and minorities, and apply the time tables and goals set forth in 41 CFR 60-4. Estill County Water District No. 1 is an equal opportunity employer.

Small and disadvantaged business enterprises are encouraged to bid on this Project.

Neither the United States nor any of its departments, agencies or employees is or will be a party to this Invitation for Bids or any resulting contract.

Award will be made to the lowest, responsive, responsible bidder. The Estill County Water District No. 1 may consider informal any bid not prepared and submitted in accordance with the provisions of this advertisement and/or the Specifications and may waive any informalities or reject any and all bids.

ESTILL COUNTY WATER DISTRICT NO. 1
Audrea Miller, Manager

EXHIBIT 8

Hatfield Newspapers Inc.

Affidavit of Publication

I hereby certify that I am the Publisher of the Citizen Voice & Times, the newspaper published in the county of Estill, Kentucky (hereinafter referred to as the "publication area") that has the largest bonafide circulation in and said publication area of any newspaper published therein.

I further certify that there is attached here to a true copy of the Estill County Water legal notice which was published in said newspaper in its regular issue for the 7th day of Jan 20 21.

I further certify that said newspaper is circulated generally in the publication area, maintains a definite price or consideration not less than fifty percent of its published price and is paid for by not less than fifty percent of those to whom distribution is made. I further certify said newspaper bears a title or name, consists of not less than four pages without a cover, is a type to which the general public resorts for passing events of a political, religious, commercial or social nature for current happenings, announcements, miscellaneous reading matter, advertisements and other noticed and that the news content of said newspaper is at least twenty-five percent of the total column space in the publication hereinbefore referred to.

Dated this 1 day of Feb 20 21.

Cheyenne Young
Teresa Hatfield-Barger, Publisher

Subscribed and sworn to before me this 1 day of February 20 21.

My commission expires May 7, 2021
#577877

Christie Young
Notary Public, Kentucky.

Classifieds

12

Thursday, January 7, 2021

SERVICES

TRACTOR AND FARM EQUIPMENT Repairs. We come to you. Call and ask Randy about our service 606-726-9277.

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HOUSE FOR SALE, 120 Cherry St., Irvine, 3 or 4 bedroom, 1 bath, basement, garage, out building, new carpet and vinyl floors, new interior paint, stove and refrigerator. Large backyard. 606-524-5563.

BARBER SHOP 106 River Drive Irvine, KY. Call 859-582-8280.

OFFICE OR RETAIL For rent. 102 River drive in Irvine, KY. Call 859-582-8280

STATEWIDE CLASSIFIEDS

ATTORNEY
Denied Social Security Disability? Appeal! If you're 50+, filed SSD and denied, our attorneys can help get you approved! No money out of pocket! Call 1-855-980-5461

SERIOUSLY INJURED in an AUTO ACCIDENT? Let us fight for you! Our network has recovered millions for clients! Call today for a FREE consultation! 1-844-423-8835

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CASH FOR CARS! We buy all cars! Junk, high-end, totaled - it doesn't matter! Get free towing and same day cash! NEWER MODELS too! Call 1-833-258-7036

Donate your car, truck or van. Help veterans find jobs or start a business. Call Patriotic Hearts Foundation. Fast, FREE pick-up. Max tax-deduction. Operators are standing by! Call 1-866-495-0115

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CELLULAR
Two great new offers from AT&T Wireless! Ask how to get the new iPhone 11 or Next Generation Samsung Galaxy S10e ON US

Attention all homeowners in jeopardy of Foreclosure? We can help stop your home from foreclosures. The Foreclosure Defense helpline can help save your home. The Call is absolutely free. 1-855-685-9465
The COVID crisis has cost us all something. Many have lost jobs and financial security. Have \$10K In Debt? Credit Cards. Medical Bills. Car Loans. Call NATIONAL DEBT RELIEF! We can help! Get a FREE debt relief quote: Call 1-877-934-0632

Wesley Financial Group, LLC
Timeshare Cancellation Experts
Over \$50,000,000 in timeshare debt and fees cancelled in 2019. Get free informational package and learn how to get rid of your timeshare! Free consultations. Over 450 positive reviews. Call 855-977-4979

GROCERY ENJOY 100% guaranteed, delivered to-the-door Omaha Steaks! Get 4 FREE Pork Chops and 4 FREE CHICKEN BREAST Order the Omaha Steaks Classic - ONLY \$129.99. Call 1-855-995-4780 and use code 66762EJR or visit www.omahasteaks.com/ dinner176

HEALTH SERVICE
LIVE PAIN FREE with CBD products from Ace Wellness. We guarantee highest quality, most competitive pricing on CBD products. Softgels, Oils, Skincare, Vape & more. Coupon Code: PRINT20 Call Now 855-780-8704

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NEW STARTING BASE PAY - .50 cpm w/ option to make .60 cpm for Class A CDL Flatbed Drivers, Excellent Benefits, Home Weekends, Call 800-648-9915 or www.boydandsons.com

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Eliminate gutter cleaning forever! LeafFilter, the most advanced debris-blocking gutter protection. Schedule a FREE LeafFilter estimate today. 15% off Entire Purchase. 10% Senior & Military Discounts. Call 1-866-329-2415

Thinking about installing a new shower? American Standard makes it easy. FREE design consultation. Enjoy your shower again! Call 1-833-443-0437 today to see how you can save \$1,000 on installation, or visit www.newshowerdeal.com/kypress

BATHROOM RENOVATIONS. EASY, ONE DAY updates! We specialize in safe bathing. Grab bars, no slip flooring & seated showers. Call for a free-in-home consultation: 1-844-519-3621

Stay in your home longer with an American Standard Walk-In Bathtub. Receive up to \$1,500 off, including a free toilet, and a lifetime warranty on the tub and installation! Call us at 1-877-530-1935 or visit www.walkintubquote.com/KY

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The Generac PWRcell, a solar plus battery storage system. SAVE money, reduce your reliance on the grid, prepare for power outages and power your home. Full installation services available. \$0 Down Financing Option. Request a FREE, no obligation, quote today. Call 1-844-499-0041 **INSURANCE SERVICES**

New Medicare Part D Insulin Savings Model. Stable, Predictable Insulin Copays throughout 2021! \$35/ Month through Deductible, Initial, and Coverage Gap stages. Cumberland Benefits, 502.386.7857

DENTAL INSURANCE from Physicians Mutual Insurance Company. Coverage for 350 plus procedures. Real dental insurance - NOT just a discount plan. Do not wait! Call now! Get your FREE Dental Information Kit with all the details! 1-855-900-7392 www.dental50plus.com/26#6258

Up to \$15,000.00 of GUARANTEED Life Insurance! No medical exam or health questions. Cash to help pay funeral and other final



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All real estate advertising in this newspaper is subject to the Fair Housing Act which makes it illegal to advertise "any preference, limitation or discrimination based on race, color, religion, sex, handicap, familial status or national origin, or an intention, to make any such preference, limitation or discrimination." Familial status includes children under the age of 18 living with parents or legal custodians, pregnant women and people securing custody of children under 18.

This newspaper will not knowingly accept any advertising for real estate which is in violation of the law. Our readers are hereby informed that all dwellings advertised in this newspaper are available on an equal opportunity basis. To complain of discrimination call HUD toll-free at 1-800-669-9777. The toll-free telephone number for the

with AT&T's Buy One, Give One offer. While supplies last! CALL 1-866-478-8859
FINANCIAL SERVICES

and family stay safe and comfortable. Prepare now. Free 7-year extended warranty (\$695 value!). Re-

hearing impaired is 1-800-927-9275.

ADVERTISEMENT FOR BIDS
CONTRACT 371-20-01
WATER SYSTEM IMPROVEMENTS,
PHASE 11--ZONE METER AND RIVER CROSSING INSTALLATION
ESTILL COUNTY WATER DISTRICT NO. 1
ESTILL COUNTY, KENTUCKY

Sealed proposals for the following work will be received by the Estill County Water District No. 1, Estill County, Kentucky at the district office, until 10:00 a.m., local time, Thursday, January 21, 2021, for furnishing labor and materials and performing all work as set forth by the Advertisement, General Conditions, Specifications and/or Drawings prepared by Bell Engineering. Immediately following the scheduled closing time for the reception of bids, all proposals which have been submitted in accordance with the above conditions will be publicly opened and read aloud.

The work to be bid is described as follows:

CONTRACT 371-20-01

Water System Improvements, Phase 11--Installation of 17 zone meters on existing lines, telemetry upgrades and replacement of 4 stream crossings via directional drilling.

Drawings, Specifications and Contract Documents may be examined at the following places:

Estill County Water District No. 1
76 Cedar Grove Road
Irvine, Kentucky 40336

Bell Engineering
2480 Fortune Drive, Suite 350
Lexington, Kentucky 40509
or may be obtained from Lynn Imaging, 328 E. Vine Street, Lexington, Kentucky 40507, phone 859/255-1021, upon receipt of non-refundable deposit as follows:

CONTRACT 371-20-01--\$200.00 (Electronic or Hard Copy)

Sealed proposals for this Contract shall be clearly marked on the outside of the envelope as follows:

"Sealed Proposal for Contract 371-20-01. Not to be opened until 10:00 a.m., local time, Thursday, January 21, 2021."

If forwarded by mail, the sealed envelope containing the proposal must be enclosed in another envelope and mailed to the Estill County Water District No. 1, 76 Cedar Grove Road, Irvine, Kentucky 40336, allowing sufficient time for such mailing to reach this address prior to the scheduled closing time for receipt of proposals.

Bids shall be accompanied by a certified check or bid bond made payable to the Estill County Water District No. 1, in an amount not less than 5 percent of the total base bid indicated in Specification Section 00200, Instructions to Bidders, Bid Security. No bidder may withdraw his bid for a period of 90 days after the date bids are opened. He may, however, withdraw his bid at any time prior to the time and date scheduled for opening of same or any authorized postponement thereof. Any bid received after the time and date specified shall not be considered and will be returned unopened to the bidder. The expected construction time for this Project is 120 calendar days and the liquidated damages have been set at \$500.00.

The attention of all contractors is called to the fact that any contract awarded under this Advertisement for Bids is expected to be funded in part by a loan from the Kentucky Infrastructure Authority, Drinking Water State Revolving Fund and from a grant from the Appalachian Regional Commission (ARC).

The OWNER's share will be provided from current funds on hand.

Work to be performed by contractors involved in this project is subject to the minimum wage rates established by the U.S. Department of Labor under the provisions of the Davis-Bacon Act.

State Revolving Fund requirements must be met by the bidder and all subcontractors.

Bidders must comply with the President's Executive Order Nos. 11246 and 11375, which prohibit discrimination in employment regarding race, creed, color, sex or national origin. Where the President's Executive Order No. 11246 is shown, Executive Order No. 11375 also applies.

Bidders must make positive efforts to secure small, minority owned, and/or disadvantaged business enterprise participation in this Project.

Bidders must comply with Title VI of the Civil Rights Act of 1964, the Anti-Kickback Act, and the Contract Work Hours Standard Act.

Bidders must certify that they do not and will not maintain or provide for their employees any facilities that are segregated or based on race, color, creed, or national origin.

Bidders must show a certification of prior work under Executive Order 11246 (Equal Employment Opportunity) as amended.

All contractors and subcontractors must comply with 41 CFR 60-4, in regard to affirmative action. This is to ensure equal opportunity to females and minorities, and apply the time tables and goals set forth in 41 CFR 60-4. Estill County Water District No. 1 is an equal opportunity employer.

Small and disadvantaged business enterprises are encouraged to bid on this Project.

Neither the United States nor any of its departments, agencies or employees is or will be a party to this Invitation for Bids or any resulting contract.

Award will be made to the lowest, responsive, responsible bidder. The Estill County Water District No. 1 may consider informal any bid not prepared and submitted in accordance with the provisions of this advertisement and/or the Specifications and may waive any informalities or reject any and all bids.

ESTILL COUNTY WATER DISTRICT NO. 1
Audrea Miller, Manager

~~Montica (aa)~~

EXHIBIT 9

We certify that the following is a true and complete tabulation of all bids received by the Estill County Water District No. 1 on January 21, 2021, for the titled project:

BELL ENGINEERING


Item No.	Description	Quantity	Unit	Roe Enterprises, Inc. dha Swartz Pipeline Contracting P.O. Box 44 Olympia, Kentucky 40358		Triple B Construction LLC 2405 South Big Run Road Ashland, Kentucky 41102		Frederick and May Construction Company, Inc. 1016 Highway 172 West Liberty, Kentucky 41472		Akins Excavating Company, Inc. 182 Busy Lane Corbin, Kentucky 40701	
				Unit Price	Total Cost	Unit Price	Total Cost	Unit Price	Total Cost	Unit Price	Total Cost
DIVISION "A" ZONE METER INSTALLATION											
1.	Cut-in pre-assembled 6-inch Zone Meter Setting on Existing 6-inch Water Line Line Including but Not Limited to Sensus Omni AMR Meter w/ Strainer, or equal, Resilient Seat Gate Valves, Valve Boxes and Collars, DIMJ Fittings, Foster Type Adaptors, DIMJ Solid Sleeve or Couplings, ABS Meter Vault w/ lid, PVC SDR-21 Pipe, DI CL 350 Flanged to Plain End Pipe, as Well as Unclassified Excavation, Assembly, Testing, Transport, Disinfection, Bedding, Installation, and Backfill; in Order to Make the Zone Meter Setting Operational, Complete	6	Each	\$27,150.00	\$162,900.00	\$42,967.74	\$257,806.44	\$24,000.00	\$144,000.00	\$29,400.00	\$176,400.00
2.	Cut-in 4-inch Zone Meter Setting on Existing 4-inch Water Line Including, but Not Limited to Sensus Omni AMR Meter w/ Strainer, or equal, Resilient Seat Gate Valves, Valve Boxes and Collars, DIMJ Fittings, Foster Adaptors, DIMJ Solid Sleeve or Couplings, ABS Meter Vault w/ lid, PVC SDR-21 Pipe, DI CL 350 Flanged to Plain End Pipe, as Well as Unclassified Excavation, Assembly, Testing, Transport, Disinfection, Bedding, Installation, and Backfill; in Order to Make the Zone Meter Setting Operational, Complete	4	Each	\$25,190.00	\$100,760.00	\$38,078.00	\$152,312.00	\$17,200.00	\$68,800.00	\$24,750.00	\$99,000.00
3.	Install FPI Full Insertion Mag meter type flow meter at existing booster pump station via 2-inch by 6-inch hot tap on existing 6-inch line. Including unclassified excavation, tapping sleeve, ABS meter jar, meter jar lid, bedding, backfill, clean-up, and disinfection; in order to make the zone meter setting operational, complete.	6	Each	\$35,000.00	\$210,000.00	\$35,449.61	\$212,697.66	\$15,000.00	\$90,000.00	\$19,200.00	\$115,200.00
4.	Install FPI Full Insertion Mag meter type flow meter at existing booster pump station via 2-inch by 12-inch hot tap on existing 12-inch line. Including unclassified excavation, tapping sleeve, ABS meter jar, meter jar lid, bedding, backfill, clean-up, and disinfection; in order to make the zone meter setting operational, complete.	1	Each	\$54,210.00	\$54,210.00	\$37,972.44	\$37,972.44	\$19,000.00	\$19,000.00	\$24,000.00	\$24,000.00
5.	Integrate and Expand Existing Telemetry to the Proposed 17 Zone Metering Sites Identified in Division "A." Furnish and Install, Complete.	1	L.S.	\$100,000.00	\$100,000.00	\$45,809.50	\$45,809.50	\$380,000.00	\$380,000.00	\$388,775.00	\$388,775.00
SUBTOTAL DIVISION "A"					\$627,870.00		\$706,598.04		\$701,800.00		\$803,375.00
DIVISION "B" STREAM CROSSING											
1.	Install 6-inch PE Stream Crossing at McSwain Branch. Including Installation of PE Water Line via Directional Drilling, PE to PVC Transition Fittings, 6-inch x 6-inch Tapping Sleeve and Tapping Valve, Valve Box and Concrete Collar, Cut, Cap and Block Existing 6-inch Water Line, Test Meter Assembly, and Fiberglass Line Marker. Furnish and Install, Complete.	1	L.S.	\$23,550.00	\$23,550.00	\$27,382.11	\$27,382.11	\$18,000.00	\$18,000.00	\$45,700.00	\$45,700.00
2.	Install 6-inch PE Stream Crossing at Kiskey Branch. Including Installation of PE Water Line via Directional Drilling, PE to PVC Transition Fittings, 6-inch x 6-inch Tapping Sleeve and Tapping Valve, Valve Box and Concrete Collar, Cut, Cap and Block Existing 6-inch Water Line, Test Meter Assembly, and Fiberglass Line Marker. Furnish and Install, Complete.	1	L.S.	\$27,000.00	\$27,000.00	\$30,797.53	\$30,797.53	\$36,200.00	\$36,200.00	\$46,650.00	\$46,650.00
3.	Install 6-inch PE Stream Crossing at Murphy Ford. Including Installation of PE Water Line via Directional Drilling, PE to PVC Transition Fittings, 6-inch x 6-inch Tapping Sleeve and Tapping Valve, Valve Box and Concrete Collar, Cut, Cap and Block Existing 6-inch Water Line, Test Meter Assembly, and Fiberglass Line Marker. Furnish and Install, Complete.	1	L.S.	\$27,000.00	\$27,000.00	\$29,829.53	\$29,829.53	\$36,200.00	\$36,200.00	\$47,675.00	\$47,675.00

Item No.	Description	Quantity	Unit	Unit Price	Total Cost	Unit Price	Total Cost	Unit Price	Total Cost	Unit Price	Total Cost
4.	Install 6-inch PE Stream Crossing at Locust Branch. Including Installation of PE Water Line via Directional Drilling, PE to PVC Transition Fittings, 6-inch x 6-inch Tapping Sleeve and Tapping Valve, Valve Box and Concrete Collar, Cut, Cap and Block Existing 6-inch Water Line, Test Meter Assembly, and Fiberglass Line Marker. Furnish and Install, Complete.	1	L.S.	\$30,000.00	\$30,000.00	\$32,055.76	\$32,055.76	\$36,200.00	\$36,200.00	\$46,250.00	\$46,250.00
SUBTOTAL DIVISION "B"					\$107,550.00		\$120,064.93		\$126,600.00		\$186,275.00
DIVISION "C" MISCELLANEOUS											
1.	Crushed Stone on Order of the Engineer, Furnish and Install, Complete.	250	Tons	\$18.00	\$4,500.00	\$26.62	\$6,655.00	\$30.00	\$7,500.00	\$31.00	\$7,750.00
2.	Bituminous Surface, Furnish and Install Complete.	100	Tons	\$45.00	\$4,500.00	\$90.75	\$9,075.00	\$200.00	\$20,000.00	\$185.00	\$18,500.00
SUBTOTAL DIVISION "C"					\$9,000.00		\$15,730.00		\$27,500.00		\$26,250.00
SUMMARY											
DIVISION "A" ZONE METER INSTALLATION					\$627,870.00		\$706,598.04		\$701,800.00		\$803,375.00
DIVISION "B" STREAM CROSSING					\$107,550.00		\$120,064.93		\$126,600.00		\$186,275.00
DIVISION "C" MISCELLANEOUS					\$9,000.00		\$15,730.00		\$27,500.00		\$26,250.00
TOTAL BASE BID CONTRACT 371-20-01					\$744,420.00		\$842,392.97		\$855,900.00		\$1,015,900.00

Roe Enterprises, Inc.
dba Swartz Pipeline Contracting
P.O. Box 44
Olympia, Kentucky 40358

Triple B Construction LLC
2405 South Big Run Road
Ashland, Kentucky 41102

Frederick and May Construction
Company, Inc.
1016 Highway 172
West Liberty, Kentucky 41472

Akins Excavating Company, Inc.
182 Busy Lane
Corbin, Kentucky 40701

EXHIBIT 10



February 10, 2021

Estill County Water District No. 1
76 Cedar Grove Rd
Irvine, Kentucky 40336

Attention: Ms. Audrea Miller

**RE: Recommendation for Award
Water System Improvements,
Phase 11- Zone Meter and River Crossing Installation
Contract Number 371-20-01
Estill County Water District No. 1
Irvine, Kentucky**

Dear Ms. Miller:

We are pleased to submit our recommendation for award of the subject contract. Following the January 21, 2021, bid opening, Bell Engineering has reviewed, mathematically checked, and tabulated all bids received, and followed up with Estill County District No. 1 in regards to references. Enclosed please find two copies of the Certified Bid Tabulation for your review and acceptance.

Contractor interest in your project was very good, with four (4) bids received. The project low bid totaled **\$744,420.00** compared to Bell Engineering's Opinion of Probable Construction Cost of \$800,000.00. The low bid was \$55,580.00 below the Engineer's As-Designed Opinion of Probable Construction Cost

Bidder Rank	Bidder Name	Bid Amount	Difference Above Low
1	Roe Enterprises, Inc. dba Swartz Pipeline Contracting	\$744,420.00	N/A
2	Triple B Construction, LLC	\$842,392.97	\$97,972.97
3	Frederick and May Construction Company, Inc.	\$855,900.00	\$111,480.00
4	Akins Excavating Company, Inc.	\$1,015,900.00	\$271,480.00
Engineer's Opinion of Probable Construction Cost		\$800,000.00	\$55,580.00



February 10, 2021

Page 2

Audrea Miller

The low bidder, Roe Enterprises, Inc. dba Swartz Pipeline Contracting has been contacted and they have informed us that they are satisfied with their bid and are capable of performing the work to a satisfactory level. References for the company are good and indicate that they are capable of conducting the work. We believe them to be capable of completing Contract 371-20-01 and recommend the contract be awarded to them as bid. If the preceding is acceptable, we suggest the Estill County Water District No. 1 pass a resolution of award for this contract, and advise Bell Engineering to distribute contract documents for execution. Should you have any questions about this or any other matter, please do not hesitate to call.

Sincerely,
BELL ENGINEERING

A handwritten signature in blue ink, appearing to read "Bryan A. Scott", is written over a faint, illegible printed name.

Bryan A. Scott, P.E.
Project Engineer

Enclosure

c: Bell Engineering File, w/enclosure

EXHIBIT 11

RESOLUTION 2021-01-28-1

A RESOLUTION OF THE BOARD OF COMMISSIONERS OF ESTILL COUNTY WATER DISTRICT NO. 1 AWARDING A CONTRACT FOR THE PURCHASE AND INSTALLATION OF METERING EQUIPMENT AND TELEMETRY UPGRADES AND THE CONSTRUCTION OF STREAM CROSSINGS

WHEREAS, Estill County Water District No. 1 (“Estill District”) caused to be published in accordance with the provisions of KRS Chapter 424 an advertisement for bids on the Contract 371-20-01 (Phase 11 - Zone Meter and River Crossing Installation Project) in the *Citizen Voice and Times* and in the *Estill Tribune*;

WHEREAS, on January 21, 2021, in accordance with the terms of those advertisements Estill District opened the bids received on Contract 371-20-01;

WHEREAS, Roe Enterprises, Inc., doing business as Swartz Pipeline Contracting, of Mount Sterling, Kentucky, submitted a bid of \$744,420, which was the lowest of the four bids on Contract 371-20-01 that were submitted in accordance with the terms of the advertisement; and,

WHEREAS, Estill District’s Board of Commissioners finds that Contract 371-20-01 should be awarded to the lowest bidder, contingent upon Estill District’s receipt of a favorable Recommendation of Award Letter from Bell Engineering and of an Order from the Kentucky Public Service Commission authorizing Estill District to enter an Assistance Agreement with the Kentucky Infrastructure Authority for KIA Loan F20-13 and issuing a certificate of public convenience and necessity authorizing Estill District to proceed with Contract 371-20-01;

NOW, THEREFORE, IT IS HEREBY RESOLVED BY THE BOARD OF COMMISSIONERS OF ESTILL COUNTY WATER DISTRICT NO. 1 AS FOLLOWS:

Section 1. The facts, recitals, and statements contained in the foregoing preamble of this Resolution are true and correct and are hereby affirmed and incorporated as a part of this Resolution.


Section 2. The Board of Commissioners hereby declares the bid of Roe Enterprises, Inc., doing business as Swartz Pipeline Contracting, in the amount of \$744,420 to be the lowest and best bid and awards Contract 371-20-01 to this firm, contingent upon Estill District’s receipt of a favorable Recommendation of Award Letter from Bell Engineering and of an Order from the Kentucky Public Service Commission authorizing Estill District to enter an Assistance Agreement with the Kentucky Infrastructure Authority for KIA Loan F20-13 and issuing a certificate of public convenience and necessity authorizing Estill District to proceed with Contract 371-20-01.

ADOPTED BY THE BOARD OF COMMISSIONERS OF ESTILL COUNTY
WATER DISTRICT NO. 1 at a meeting held on January 28, 2021, signed by the Chairman,
and attested by the Secretary.



D. Blain Click, Chairman

ATTEST:

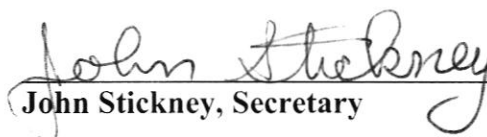


John Stickney, Secretary

CERTIFICATION

The undersigned Secretary of Estill County Water District No. 1 ("the District") does hereby certify that the foregoing is a true copy of a Resolution duly adopted by the District's Board of Commissioners at a meeting properly held on January 28, 2021, signed by the Chairman of the Board of Commissioners, attested by the Secretary of the Board of Commissioners, and is now in full force and effect.

WITNESS my hand this 28th day of January 2021.



John Stickney, Secretary

EXHIBIT 12



ANDY BESHEAR
GOVERNOR

REBECCA W. GOODMAN
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

ANTHONY R. HATTON
COMMISSIONER

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601

August 3, 2020

Greg Wright
Bell Engineering
2480 Fortune Dr
Lexington, KY 40509

RE: Phase 11 Improvements
F20-013
Estill County, KY
Estill Co Water District
AI #: 34966, FGL20200006

Dear Mr. Greg Wright:

The Kentucky Division of Water (DOW) has reviewed for completeness and adequacy the construction plans and specifications submitted for the above referenced contract(s). The DOW now approves these plans and specifications with respect to sanitary features of design in accordance with the requirements contained in the attached construction permit. The plans consist of 900 LF of 6-inch HDPE water line replacements at four (4) creek crossings, seventeen (17) zone meters for distribution system monitoring including three (3) flow meters in existing booster pump stations, telemetry upgrades, replacement of 3,000 existing residential meters with radio read meters, 700 adapters for existing residential meters for radio read capability, removal of 100 inactive meters, meter reading software and equipment upgrades, and crushed stone and associated pavement repairs. The approval conditions and a list of eligible/ineligible items are enclosed. Please note that ineligible items cannot be funded using State Revolving Fund (SRF) monies, and must be paid by other funding sources.

We have sent one (1) set of approved plans and specifications. An identical set should be made available at the project site at all times. If modifications are made to these plans and specifications before bidding, two (2) complete sets of as-bid plans and specifications must be submitted to the DOW for approval. A second DOW construction approval must be issued by separate correspondence before proceeding with advertising for bids. Any red line changes that were made by DOW personnel on the approved plans shall be incorporated into the bid set plans unless an alternative is approved.

You may now advertise for bids on the construction of this project. In addition to other notifications, this project must be advertised in the newspaper of the largest daily circulation in the project area.

You are cautioned not to advertise unless you have a proper wage decision. The Federal Davis-Bacon wage rates are applicable for this project. Please contact all other funding sources for their requirements pertaining to federal wage rates.

Phase 11 Improvements
F20-013
Estill Co Water District
AI #: 34966, FGL20200006
August 3, 2020
Page 2 of 3

You are reminded that the construction contracts are subject to the equal employment opportunity requirements contained in Executive Order 11246. Equal employment opportunity affirmative action by the prime contractors and all subcontractors is mandated throughout the duration of the contract. Documentation of efforts to comply with Executive Order 11246, Equal Employment Opportunity is required to be kept by the borrower.

Review the attached Project Review and Cost Summary form for details of the information to be collected and retained in your files or to be submitted to DOW for review and approval. This form must be completed, signed by the recipient, and with the necessary information be then forwarded to the DOW. This signature will certify that all the information to be retained by the recipient has been secured and is available for review by the Division at the pre-construction conference. The required information must be approved by the DOW before executing any contracts.

Along with the Project Review and Cost Summary form, the following items must be submitted to the DOW for review and approval before executing any contracts:

- The bid advertisement
- Revised Project Budget
- Certified bid tabulation
- Documentation of compliance with DBE Good Faith Effort in accordance with 40 CFR 33.301

These items will be reviewed as a part of the Authority to Award process. The DOW will authorize you to award the contracts once these documents are approved

After the Notice to Proceed is signed, the DOW will need a copy of the executed contract documents, including plans and specifications.

Changes orders will require approval from the DOW before payment can be authorized from the State Revolving Fund. Submission of plans and specifications may be required for change order work.

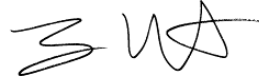
Upon completion of the project, as-built drawings shall be provided to the DOW. As-builts shall be stamped, signed and dated by a professional engineer. A written certification stating that the project was constructed according to the approved plans shall be provided to the DOW by a professional engineer.

The construction permit included in this letter has been issued under the provisions of KRS Chapter 224 and the regulations promulgated pursuant thereto. Issuance of this approval does not relieve the applicant from the responsibility of obtaining any other approvals, permits or licenses required by this Cabinet and other state, federal and local agencies.

You are cautioned that the advertisement and award of this contract will be subject to the laws and regulations that govern the State Revolving Fund (SRF) and to the conditions of your loan agreement. If we can be of further assistance, please call David Coe, Project Engineer, at (502) 782-6296.

Phase 11 Improvements
F20-013
Estill Co Water District
AI #: 34966, FGL20200006
August 3, 2020
Page 3 of 3

Sincerely,



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

TH:DRC
Enclosures

Eligible List, Ineligible List, Approval Conditions
Project Review and Cost Summary Form
1 set plans and specification

C: Estill Co Water District No 1
Kentucky Infrastructure Authority
Cabinet for Economic Development
Estill County Health Department
Division of Plumbing

F20-013
Bell Engineering

SRF ELIGIBLE ITEMS:

Contract No. 371-20-01 Water System Improvements Phase 11:

All the bid items for the contract are SRF eligible.

900 LF of 6-inch HDPE water line replacements at four (4) creek crossings
Seventeen (17) zone meters for distribution system monitoring including three (3) flow meters in existing booster pump stations
Telemetry upgrades
Replacement of 3,000 existing residential meters with radio read meters
700 adapters for existing residential meters for radio read capability
Removal of 100 inactive meters
Meter Reading software and equipment upgrade
Crushed stone and associated pavement repairs

SRF INELIGIBLE ITEMS:

Contract No. 371-20-01 Water System Improvements Phase 11:

None of the bid items for the contract are SRF ineligible.

APPROVAL CONDITIONS:

1. Provide Clear Site Certificates
2. Complete and return the Project Review and Cost Summary Form.

PROJECT REVIEW AND COST SUMMARY

This questionnaire/checklist is furnished as an administrative aid and is required for use in supplying information and documents, reporting minor changes, and project status. The information and documents should be submitted to DOW as soon as possible after bid opening.

DRINKING WATER SRF

CLEAN WATER SRF

SECTION 1.

1. Project Name _____ Project Number _____

2. Changes: Have there been any changes in the project since DOW's approval of the plans and specifications?

Yes No Construction Drawings. If yes, submit revised drawings and addenda. **See Note***

Yes No Specifications. If yes, submit addenda. **See Note***

Yes No Site Changes. If so, new Clear Site Certificates are required prior to start of construction.

Yes No Authorized Representative (Mayor, City Manager, etc.). If so, provide name and title.

***Note:** Prior approval is required for changes in design, scope, type of treatment, size, capacity, time to complete the project, etc. Changes, which result in increase in the amount of a contract, must be procured in accordance with state and federal requirements, as applicable.

SECTION 2.

Date Bids Opened: _____ Date Bids Expire: _____

1. The following items should be submitted to DOW after bid opening:
 - a) Executed Project Review & Cost Summary Form (this form).
 - b) Revised (As-bid) Budget (form attached).
 - c) Original bid advertisement or copy of advertisement with affidavit of publication.
 - d) Certified Bid Tabulations with engineer's seal.
 - e) Davis-Bacon ATA Certification form (with Project Wage Rate Sheet HUD-4720 form).
 - g) Clear Site Certificates.
 - h) DBE Documentation (See Attachment No. 11 of the Supplemental General Conditions (SGC)):
 - (1) Disadvantaged Business Enterprise Participation Policy form from the successful low bidder with DBE certifications and executed subcontracts with DBEs or letters of intent signed by both parties; and documentation on the level of effort taken

to obtain DBEs including copies of correspondence with DBE contractors, requesting quotes and copies of any advertisements soliciting DBE contractors, copies of returned envelopes and certified mail receipts, telephone log, etc.

(2) Bidder's List Form from recipient and successful bidder.

2. The following items must be submitted to DOW at the Pre-construction Meeting:

- a) Executed Contract Documents (once contract is signed).
- b) Notice of Award, Notice to Proceed, Bid Bond, Payment Bond, and Performance Bond (generally included in executed contract).
- c) Technical Specification (generally included in executed contract).
- d) Contractor's Certification Regarding Lobbying (See Attachment No. 11 in the SGC).
- e) Contractor's Debarred Firm Certification (See Attachment No. 10 in the SGC).

3. A copy of the items identified in Section 2.1 and Section 2.2, above, and the following must be retained by the owner. This documentation is subject for review, by DOW, at the time of the pre-construction conference.

- a) Name and qualifications of the proposed resident inspector(s).
- b) Proposal of the successful bidder(s).
- c) EEO documentation required by Executive Order 11246 as amended. Items 1 through 11 (See Attachment No. 7 in the SGC), is required for all contracts over \$10,000 except supplier contracts. Supplier contracts require:
 - (1) Name, address, and telephone number.
 - (2) Materials to be supplied and dollar value.For contracts below \$10,000, the same information required for supplier contracts must be submitted.
- d) Engineer's letter to the loan recipient recommending award of the contract. Letter must include a description of work, dollar amount, and name of the low bidder. If award is recommended to be made to other than the low bidder, a justification indicating why the low bidder is not responsive or responsible.
- e) Contractor project construction schedule and payment schedule.
- f) Applicable wage rate determination letter.
- g) Tentative Award Resolution.

4. **Comments:** _____

I hereby certify that all documentation outlined in Section 2.1, 2.2 and 2.3 will be retained in our project files and all documentation outlined in Section 2.1 has been submitted to DOW and all documentation outlined in Section 2.2 will be submitted to DOW during the Pre-construction meeting.

Signature of Authorized Representative

Date

Print Name and Title

SRF Project Cost Summary

Project Title: _____ WRIS#: _____

Project Budget: **Estimated** enter date **As Bid** enter date **Revised** enter date

Cost Classification	SRF KIA Loan	Funding Source 1	Funding Source 2	Funding Source 3	Funding Source 4	Funding Source 5	Local Funds	Unfunded Costs	Total
1	Administrative Expenses								
2	Legal Expenses								
3	Land, Appraisals, Easements								
4	Relocation Expenses & Payments								
5	Planning								
6	Engineering Fees – Design								
7	Engineering Fees – Construction								
8	Engineering Fees – Inspection								
9	Engineering Fees – Other								
10	Construction								
11	Equipment								
12	Miscellaneous								
13	Contingencies								
Total									

Funding Sources	Amount	Date Committed
1		
2		
3		
4		
5		
Total		

Local Funding Sources	Amount	Date Committed
1		
2		
3		
Total		

Total Funding \$ _____

Cost Categories	Funding Source	Total Cost
Treatment (DW)		
Transmission and Distribution (DW)		
Source (DW)		
Storage (DW)		
WWTP Secondary Portion (CW)		
WWTP Advanced Portion (CW)		
Inflow and Infiltration Correction (CW)		
Major Sewer Rehabilitation (CW)		
Collector Sewers (CW)		
Interceptor Sewers including Pump Station (CW)		
Combined Sewer Overflow Correction (CW)		
Purchase of Systems (DW and CW)		
Restructuring (DW and CW)		
Land Acquisition (DW and CW)		
Total Costs		

EXHIBIT 13

ANDY BESHEAR
GOVERNOR



REBECCA W. GOODMAN
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

ANTHONY R. HATTON
COMMISSIONER

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601

November 19, 2020

Andrea Miller
Estill Co Water District No 1
76 Cedar Grove Rd
Irvine, KY 40336

RE: Phase 11 Improvements Zone Meters and River Crossings
Phase 11 Improvements Residential Meters
F20-013
Estill County, KY
Estill Co Water District
AI #: 34966, FGL20200006 FGL20200008

Dear Mr. Greg Wright:

The Kentucky Division of Water (DOW) has reviewed for completeness and adequacy the construction plans and specifications submitted for the above referenced contract(s). The DOW previously approved the plans and specifications with respect to sanitary features of design on August 8, 2020. The plans consist of 900 LF of 6-inch HDPE water line replacements at four (4) creek crossings; seventeen (17) zone meters for distribution system monitoring including three (3) flow meters in existing booster pump stations, and telemetry upgrades in the first contract titled zone meters and river crossings. The second contract titled, residential meters includes the replacement of 3,000 existing residential meters with radio read meters, 700 adapters for existing residential meters for radio read capability, removal of 100 inactive meters, meter reading software and equipment upgrade, and crushed stone and associated pavement repairs. The approval conditions and a list of eligible/ineligible items are enclosed. Please note that ineligible items cannot be funded using State Revolving Fund (SRF) monies, and must be paid by other funding sources.

We have sent one (1) set of approved plans and specifications, previously approved. An identical set should be made available at the project site at all times. If modifications are made to these plans and specifications before bidding, two (2) complete sets of as-bid plans and specifications must be submitted to the DOW for approval. A second DOW construction approval must be issued by separate correspondence before proceeding with advertising for bids. Any red line changes that were made by DOW personnel on the approved plans shall be incorporated into the bid set plans unless an alternative is approved.

You may now advertise for bids on the construction of this project. In addition to other notifications, this project must be advertised in the newspaper of the largest daily circulation in the project area.

Phase 11 Improvements Zone Meters and River Crossings
Phase 11 Improvements Residential Meters
F20-013
Estill Co Water District
AI #: 34966, FGL20200006, FGL20200008
November 19, 2020
Page 2 of 3

You are cautioned not to advertise unless you have a proper wage decision. The Federal Davis-Bacon wage rates are applicable for this project. Please contact all other funding sources for their requirements pertaining to federal wage rates.

You are reminded that the construction contracts are subject to the equal employment opportunity requirements contained in Executive Order 11246. Equal employment opportunity affirmative action by the prime contractors and all subcontractors is mandated throughout the duration of the contract. Documentation of efforts to comply with Executive Order 11246, Equal Employment Opportunity is required to be kept by the borrower.

Review the attached Project Review and Cost Summary form for details of the information to be collected and retained in your files or to be submitted to DOW for review and approval. This form must be completed, signed by the recipient, and with the necessary information be then forwarded to the DOW. This signature will certify that all the information to be retained by the recipient has been secured and is available for review by the Division at the pre-construction conference. The required information must be approved by the DOW before executing any contracts.

Along with the Project Review and Cost Summary form, the following items must be submitted to the DOW for review and approval before executing any contracts:

- The bid advertisement
- Revised Project Budget
- Certified bid tabulation
- Documentation of compliance with DBE Good Faith Effort in accordance with 40 CFR 33.301

These items will be reviewed as a part of the Authority to Award process. The DOW will authorize you to award the contracts once these documents are approved

After the Notice to Proceed is signed, the DOW will need a copy of the executed contract documents, including plans and specifications.

Changes orders will require approval from the DOW before payment can be authorized from the State Revolving Fund. Submission of plans and specifications may be required for change order work.

Upon completion of the project, as-built drawings shall be provided to the DOW. As-builts shall be stamped, signed and dated by a professional engineer. A written certification stating that the project was constructed according to the approved plans shall be provided to the DOW by a professional engineer.

The previously issued construction permit has been issued under the provisions of KRS Chapter 224 and the regulations promulgated pursuant thereto. Issuance of this approval does not relieve the applicant from the responsibility of obtaining any other approvals, permits or licenses required by this Cabinet and other state, federal and local agencies.

Phase 11 Improvements Zone Meters and River Crossings
Phase 11 Improvements Residential Meters
F20-013
Estill Co Water District
AI #: 34966, FGL20200006, FGL20200008
November 19, 2020
Page 3 of 3

You are cautioned that the advertisement and award of this contract will be subject to the laws and regulations that govern the State Revolving Fund (SRF) and to the conditions of your loan agreement. If we can be of further assistance, please call David Coe, Project Engineer, at (502) 782-6296.

Sincerely,



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

TH:DRC
Enclosures

Eligible List, Ineligible List, Approval Conditions
Project Review and Cost Summary Form
1 set plans and specification

C: Estill County Water District
Kentucky Infrastructure Authority
Cabinet for Economic Development
Estill County Health Department
Division of Plumbing

EXHIBIT 14

Description of Proposed Facilities' Location

1. Murphy Ford 4 Stream Crossing: See Exhibit 5, Sheet 2; Exhibit 20, pages 1-3 and 6-8
2. McSwain Branch 3 Stream Crossing: : See Exhibit 5, Sheet 2; Exhibit 20, pages 11-13
3. Locust Branch 3 Stream Crossing: See Exhibit 5, Sheet 2; Exhibit 20, pages 20-23
4. Kissy Branch Stream Crossing: See Exhibit 5, Sheet 2; Exhibit 20, pages 16-18

Meter and Telemetry Equipment Installations:

(All locations are in Estill County, Kentucky)

1. Intersection of KY 86 (New Fox Road) and KY 89
2. KY 89 (Ivory Hill Pump Station) - 7677 Winchester Road (KY89)
3. Sugar Hollow Road – Approximately 1,050 feet Southwest of the Juncture of Sugar Hollow Road and Doe Creek Road (KY 851
4. Intersection of KY 89 (Winchester Road) and KY 82 (Sprout Springs Road)
5. KY 1353 (Trotting Ridge Road) – North of Junction of KY 52 and KY 1353
6. KY 1457 (Sand Hill Rd) – North of Junction of KY 1457 and Opossum Run Road
7. KY 1457 at Sand Hill Pump Station – 520 KY 1457
8. Sweetlick Road – West of Juncture of Jacqueline Court and Sweetlick Road
9. 89 KY (New River Pump Station) – 20 South Irvine Road
10. KY 594 (Pea Ridge Road) – South of the Juncture of KY 594 and Lee Acres Road
11. KY 499 (Dug Hill Road) West of Juncture of KY 499 and Crook Creek Road
12. Clay Issacs Road – Southwest of the Juncture of Clay Issacs Road and Murphy Flat Road
13. KY 89
14. KY 851 (Barnes Mountain Pump Station) – Directly east of County Road 1169 and south of the Juncture of KY 851 and Gordon Road
15. KY 3329 (Old Landing Road also known as Big Doe Creek Road) – Northeast of Juncture of KY 851, KY 3329 and Goldfin Lane
16. South Irvine Pump Station – 150 Doe Creek Road
17. KY 1182 (Cob Hill Road) -1200 feet Northeast of the Juncture of KY82 and Morefield Road

EXHIBIT 15

PROVIDED AS SEPARATE DOCUMENT

EXHIBIT 16

SPECIFICATIONS FOR
CONTRACT 371-20-01

WATER SYSTEM IMPROVEMENTS, PHASE 11 – ZONE METER AND RIVER CROSSING INSTALLATION

*ESTILL COUNTY WATER DISTRICT NO. 1
ESTILL COUNTY, KENTUCKY*



April 2020



2480 Fortune Drive
Suite 350
Lexington, KY 40509
859/278-5412

107 Forbes Drive
Hopkinsville, KY 42240
270/886-5466

1278 Hendersonville Road
Suite D
Asheville, NC 28803
828/774-5499

INDEX

**CONTRACT 371-20-01
WATER SYSTEM IMPROVEMENTS
PHASE 11-ZONE METER AND RIVER CROSSING INSTALLATION
ESTILL COUNTY WATER DISTRICT NO. 1
ESTILL COUNTY, KENTUCKY**

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C-410	Form of Proposal	1 Thru 7
C-430	Bid Bond	1 Thru 2
C-451	Bidder's Qualification Statement	1 Thru 8
C-520	Agreement between Owner and Contractor	1 Thru 6
C-610	Performance Bond	1 Thru 3
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371-20-01 (04/2020)

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<u>DIVISIONS 3 THRU 4</u>		
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END

371-20-01 (04/2020)

SECTION 00010

**ADVERTISEMENT FOR BIDS
CONTRACT 371-20-01
WATER SYSTEM IMPROVEMENTS
PHASE 11-ZONE METER AND RIVER CROSSING INSTALLATION
ESTILL COUNTY WATER DISTRICT NO. 1
ESTILL COUNTY, KENTUCKY**

Sealed proposals for the following work will be received by the Estill County Water District No. 1, Estill County, Kentucky at the district office, until 10:00 a.m., local time, Thursday, January 21, 2021, for furnishing labor and materials and performing all work as set forth by the Advertisement, General Conditions, Specifications and/or Drawings prepared by Bell Engineering. Immediately following the scheduled closing time for the reception of bids, all proposals which have been submitted in accordance with the above conditions will be publicly opened and read aloud.

The work to be bid is described as follows:

CONTRACT 371-20-01

Water System Improvements, Phase 11—Installation of 17 zone meters on existing lines, telemetry upgrades and replacement of 4 stream crossings via directional drilling.

Drawings, Specifications and Contract Documents may be examined at the following places:

Estill County Water District No. 1
76 Cedar Grove Road
Irvine, Kentucky 40336

Bell Engineering
2480 Fortune Drive, Suite 350
Lexington, Kentucky 40509

or may be obtained from Lynn Imaging, 328 E. Vine Street, Lexington, Kentucky 40507, phone 859/255-1021, upon receipt of non-refundable deposit as follows:

CONTRACT 371-20-01--\$200.00 (Electronic or Hard Copy)

Sealed proposals for this Contract shall be clearly marked on the outside of the envelope as follows:

“Sealed Proposal for Contract 371-20-01. Not to be opened until 10:00 a.m., local time, Thursday, January 21, 2021.”

If forwarded by mail, the sealed envelope containing the proposal must be enclosed in another envelope and mailed to the Estill County Water District No. 1, 76 Cedar Grove Road, Irvine, Kentucky 40336, allowing sufficient time for such mailing to reach this address prior to the scheduled closing time for receipt of proposals.

371-20-01 (04/2020)

Bids shall be accompanied by a certified check or bid bond made payable to the Estill County Water District No. 1, in an amount not less than 5 percent of the total base bid indicated in Specification Section 00200, Instructions to Bidders, Bid Security. No bidder may withdraw his bid for a period of 90 days after the date bids are opened. He may, however, withdraw his bid at any time prior to the time and date scheduled for opening of same or any authorized postponement thereof. Any bid received after the time and date specified shall not be considered and will be returned unopened to the bidder. The expected construction time for this Project is 120 calendar days and the liquidated damages have been set at \$500.00.

The attention of all contractors is called to the fact that any contract awarded under this Advertisement for Bids is expected to be funded in part by a loan from the Kentucky Infrastructure Authority, Drinking Water State Revolving Fund and from a grant from the Appalachian Regional Commission (ARC).

The OWNER's share will be provided from current funds on hand.

Work to be performed by contractors involved in this project is subject to the minimum wage rates established by the U.S. Department of Labor under the provisions of the Davis Bacon Act.

State Revolving Fund requirements must be met by the bidder and all subcontractors.

Bidders must comply with the President's Executive Order Nos. 11246 and 11375, which prohibit discrimination in employment regarding race, creed, color, sex or national origin. Where the President's Executive Order No. 11246 is shown, Executive Order No. 11375 also applies.

Bidders must make positive efforts to secure small, minority owned, and/or disadvantaged business enterprise participation in this Project.

Bidders must comply with Title VI of the Civil Rights Act of 1964, the Anti Kickback Act, and the Contract Work Hours Standard Act.

Bidders must certify that they do not and will not maintain or provide for their employees any facilities that are segregated or based on race, color, creed, or national origin.

Bidders must show a certification of prior work under Executive Order 11246 (Equal Employment Opportunity) as amended.

All contractors and subcontractors must comply with 41 CFR 60-4, in regard to affirmative action. This is to ensure equal opportunity to females and minorities, and apply the time tables and goals set forth in 41 CFR 60-4. Estill County Water District No. 1 is an equal opportunity employer.

Neither the United States nor any of its departments, agencies or employees is or will be a party to this Invitation for Bids or any resulting contract.

371-20-01 (04/2020)

Award will be made to the lowest, responsive, responsible bidder. The Estill County Water District No. 1 may consider informal any bid not prepared and submitted in accordance with the provisions of this advertisement and/or the Specifications and may waive any informalities or reject any and all bids.

ESTILL COUNTY WATER DISTRICT NO. 1

By 
Andrea Miller, Manager

Bell Engineering
2480 Fortune Drive
Suite 350
Lexington, Kentucky 40509
Phone: 859/278-5412

END OF SECTION

00010-3

INSTRUCTIONS TO BIDDERS

CONTRACT 371-20-01

WATER SYSTEM IMPROVEMENTS,

PHASE 11 – ZONE METER AND RIVER CROSSING INSTALLATION

ESTILL COUNTY WATER DISTRICT NO. 1

ESTILL COUNTY, KENTUCKY

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ARTICLE 1 – DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. *Issuing Office* – The office from which the Bidding Documents are to be issued.

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents may be obtained from the Issuing Office in the number and format stated in the advertisement or invitation to bid.

2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, after submitting its Bid and within 5 days of Owner's request, Bidder shall submit (a) written evidence establishing its qualifications such as financial data, previous experience, and present commitments, and (b) the following additional information:

A. Refer to Section C-451.

3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.

3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

3.04 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

ARTICLE 4 – SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

4.01 *Site and Other Areas*

A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor. Contractor will be responsible for minimizing siltation and erosion control during construction.

4.02 *Existing Site Conditions*

- A. Subsurface and Physical Conditions; Hazardous Environmental Conditions
 - 1. The Supplementary Conditions identify:
 - a. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site.
 - b. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
 - c. reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - d. Technical Data contained in such reports and drawings.
 - 2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
 - 3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.
- B. Underground Facilities: Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or adjacent to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.
- C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.

4.03 *Site Visit and Testing by Bidders*

- A. Bidder shall conduct the required Site visit during normal working hours, and shall not disturb any ongoing operations at the Site.
- B. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- C. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing

so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site.

- D. Bidder shall comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- E. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

4.04 *Owner's Safety Program*

- A. Site visits and work at the Site may be governed by an Owner safety program. As the General Conditions indicate, if an Owner safety program exists, it will be noted in the Supplementary Conditions.

4.05 *Other Work at the Site*

- A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 5 – BIDDER'S REPRESENTATIONS

5.01 It is the responsibility of each Bidder before submitting a Bid to:

- A. examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;
- B. visit the Site, conduct a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfy itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
- C. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work;
- D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings;
- E. consider the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of

- the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs;
- F. agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
 - G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
 - H. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;
 - I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and
 - J. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 6 – PRE-BID CONFERENCE

- 6.01 A pre-Bid conference will be held at the time and location stated in the invitation or advertisement to bid. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

- 7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all parties recorded as having received the Bidding Documents. Questions received less than seven days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 7.02 Addenda may be issued to clarify, correct, supplement, or change the Bidding Documents.

ARTICLE 8 – BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5 percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a certified check, bank money order, or a Bid bond (on the form included in the Bidding Documents) issued by a surety meeting the requirements of Paragraphs 6.01 and 6.02 of the General Conditions.
- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract Documents, furnished the

required contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults.

- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.
- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within seven days after the Bid opening.

ARTICLE 9 – CONTRACT TIMES

- 9.01 The number of days within which, or the dates by which, the Work is to be substantially completed, and completed and ready for final payment, are set forth in the Agreement.

ARTICLE 10 – LIQUIDATED DAMAGES

- 10.01 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 11 – SUBSTITUTE AND "OR-EQUAL" ITEMS

- 11.01 The Contract for the Work, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents with substitute or "or-equal" materials and equipment presumed to be equal but which will have to be proven equal or acceptable during the shop drawing review phase as described in the General Conditions. The materials and equipment described in the Bidding Documents establish a standard of required type, function, and quality to be met by any proposed substitute or "or-equal" item. The burden of proof of the merit of the proposed item is upon Bidder. Engineer's decision of approval or disapproval of the proposed item will be final. Bidders shall not rely upon approvals made in any other manner. If, after award of the Contract, the Engineer approves a substitute or an "or-equal" item, any reduction made in contract price will be subtracted from the bidder's contract and placed into contingency funds for the Project.
- 11.02 All prices that Bidder sets forth in its Bid shall be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or-equal" or substitution requests are made at Bidder's sole risk.

ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 12.01 A Bidder shall be prepared to retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of the Work if required by the Bidding Documents (most commonly in the Specifications) to do so. If a prospective Bidder objects to retaining any such Subcontractor, Supplier, or other individual or entity, and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.

- 12.02 Subsequent to the submittal of the Bid, Owner may not require the Successful Bidder or Contractor to retain any Subcontractor, Supplier, or other individual or entity against which Contractor has reasonable objection.
- 12.03 The apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of the Subcontractors or Suppliers proposed for the following portions of the Work: Zone meter installation and stream crossings.
- If requested by Owner, such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder shall submit a substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.
- 12.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.06 of the General Conditions.

ARTICLE 13 – PREPARATION OF BID

- 13.01 The Bid Form is included with the Bidding Documents.
- A. All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
- B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words "No Bid" or "Not Applicable."
- 13.02 A Bid by a corporation shall be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation shall be shown.
- 13.03 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The partnership's address for receiving notices shall be shown.
- 13.04 A Bid by a limited liability company shall be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the firm's address for receiving notices shall be shown.
- 13.05 A Bid by an individual shall show the Bidder's name and address for receiving notices.
- 13.06 A Bid by a joint venture shall be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture's address for receiving notices shall be shown.

- 13.07 All names shall be printed in ink below the signatures.
- 13.08 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 13.09 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 13.10 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 – BASIS OF BID

14.01 Lump Sum

- A. Bidders shall submit a Bid on a lump sum basis as set forth in the Bid Form.

14.02 Unit Price

- A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
- B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity" (which Owner or its representative has set forth in the Bid Form) for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

14.03 Allowances

- A. For cash allowances the Bid price shall include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 13.02.B of the

ARTICLE 15 – SUBMITTAL OF BID

- 15.01 With each copy of the Bidding Documents, a Bidder is furnished one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 7 of the Bid Form.
- 15.02 A Bid shall be received no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to Estill County Water District No. 1, 76 Cedar Grove Road, Irvine, Kentucky 40336.

- 15.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID

- 16.01 A Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- 16.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 16.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 16.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 17 – OPENING OF BIDS

- 17.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

- 19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible. If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, then the Owner will reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work.
- 19.02 The contract will be awarded to the lowest, responsive, responsible bidder.
- 19.03 Evaluation of Bids
- A. In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
 - B. Bid prices will be compared after adjusting for differences in time of Substantial Completion (total number of calendar days to substantially complete the Work) designated by Bidders. The adjusting amount will be determined at the rate set forth in the Agreement for

liquidated damages for failing to achieve Substantial Completion, or such other amount that Owner has designated in the Bid Form.

1. The method for calculating the lowest bid for comparison will be the summation of the Bid price shown in the Bid Form plus the product of the Bidder-specified time of Substantial Completion (in calendar days) times the rate for liquidated damages (in dollars per day).
2. This procedure is only used to determine the lowest bid for comparison and contractor selection purposes. The Contract Price for compensation and payment purposes remains the Bid price shown in the Bid Form.

19.04 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 20 – BONDS AND INSURANCE

20.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the Agreement (executed by Successful Bidder) to Owner, it shall be accompanied by required bonds and insurance documentation.

ARTICLE 21 – SIGNING OF AGREEMENT

21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder shall execute and deliver the required number of counterparts of the Agreement (and any bonds and insurance documentation required to be delivered by the Contract Documents) to Owner. Within ten days thereafter, Owner shall deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 22 – SALES AND USE TAXES

22.01 See Specification Section 00700, Article 7.09, for instructions.

BID FORM

**CONTACT 371-20-01
WATER SYSTEM IMPROVEMENTS,
PHASE 11 – ZONE METER AND RIVER CROSSING INSTALLATION
ESTILL COUNTY WATER DISTRICT NO. 1
ESTILL COUNTY, KENTUCKY**

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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

*Estill County Water District No. 1
76 Cedar Grove Road
Irvine, Kentucky 40336*

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

<u>Addendum No.</u>	<u>Addendum, Date</u>
_____	_____
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of

such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.

- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
 - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the price(s) as shown on the Form of Proposal following Article 9.01 of this Section C-410 of these Specifications.

ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

- A. Required Bid security;
- B. List of Proposed Subcontractors;
- C. List of Proposed Suppliers;
- D. List of Project References;
- E. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;
- F. Required Bidder Qualification Statement with supporting data; and

ARTICLE 8 – DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

By:

[Signature] _____

[Printed name] _____

(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:

[Signature] _____

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail address: _____

Bidder's License No.: _____

(where applicable)

**FORM OF PROPOSAL
CONTRACT 371-20-01
WATER SYSTEM IMPROVEMENTS,
PHASE 11 – ZONE METER AND RIVER CROSSING INSTALLATION
ESTILL COUNTY WATER DISTRICT NO. 1
ESTILL COUNTY, KENTUCKY**

Note: The following Form of Proposal shall be followed exactly in submitting a proposal for this work. This copy, properly filled in, shall be used in submitting a proposal.

This proposal is submitted by _____

(Name and Address of Bidding Contractor) Zip Code

Date: _____ Phone No.: _____
Area Code

To: Estill County Water District No. 1
76 Cedar Grove Road
Irvine, Kentucky 40336

Having carefully examined the complete contract documents, including all general and technical specifications and drawings, special requirements, as well as the project site, the undersigned, hereinafter known as the CONTRACTOR, proposes to furnish all labor, materials, tools, machinery, appliances, supplies, equipment, and services as called for by the applicable contract documents, as well as by all Addenda heretofore issued. We agree to enter into a contract and to complete all work required by and under the terms and conditions of the contract documents for the amounts shown in this proposal form.

We acknowledge receipt of the following Addenda:

No. _____, dated _____.	No. _____, dated _____.
No. _____, dated _____.	No. _____, dated _____.
No. _____, dated _____.	No. _____, dated _____.
No. _____, dated _____.	No. _____, dated _____.

If none received, write "none" here: _____.

CONTRACT 371-20-01 WATER SYSTEM IMPROVEMENTS,
 PHASE 11 - ZONE METER AND RIVER CROSSING INSTALLATION
 ESTILL COUNTY WATER DISTRICT NO. 1
 ESTILL COUNTY, KENTUCKY

Item No.	Description	Quantity	Unit	Unit Price	Total Cost
----------	-------------	----------	------	------------	------------

DIVISION "A" ZONE METER INSTALLATION

1.	Cut-In pre-assembled 6-Inch Zone Meter Setting on Existing 6-Inch Water Line Including but Not Limited to Sensus Omni AMR Meter w/ Strainer, or equal, Resilient Seat Gate Valves, Valve Boxes and Collars, DIMJ Fittings, Foster Type Adaptors, DIMJ Solid Sleeve or Couplings, ABS Meter Vault w/ lid, PVC SDR-21 Pipe, DI CL 350 Flanged to Plain End Pipe, as Well as Unclassified Excavation, Assembly, Testing, Transport, Disinfection, Bedding, Installation, and Backfill; in Order to Make the Zone Meter Setting Operational, Complete	6	Each	\$ _____	\$ _____
2.	Cut-In 4-Inch Zone Meter Setting on Existing 4-Inch Water Line Including, but Not Limited to Sensus Omni AMR Meter w/ Strainer, or equal, Resilient Seat Gate Valves, Valve Boxes and Collars, DIMJ Fittings, Foster Adaptors, DIMJ Solid Sleeve or Couplings, ABS Meter Vault w/ lid, PVC SDR-21 Pipe, DI CL 350 Flanged to Plain End Pipe, as Well as Unclassified Excavation, Assembly, Testing, Transport, Disinfection, Bedding, Installation, and Backfill; in Order to Make the Zone Meter Setting Operational, Complete	4	Each	\$ _____	\$ _____
3.	Install FPI Full Insertion Mag meter type flow meter at existing booster pump station via 2-inch by 6-inch hot tap on existing 6-inch line. Including unclassified excavation, tapping sleeve, ABS meter jar, meter jar lid, bedding, backfill, clean-up, and disinfection; in order to make the zone meter setting operational, complete.	6	Each	\$ _____	\$ _____
4.	Install FPI Full Insertion Mag meter type flow meter at existing booster pump station via 2-inch by 12-inch hot tap on existing 12-inch line. Including unclassified excavation, tapping sleeve, ABS meter jar, meter jar lid, bedding, backfill, clean-up, and disinfection; in order to make the zone meter setting operational, complete.	1	Each	\$ _____	\$ _____
5.	Integrate and Expand Existing Telemetry to the Proposed 17 Zone Metering Sites Identified in Division "A." Furnish and Install, Complete.	1	L.S.	\$ _____	\$ _____
SUBTOTAL DIVISION "A"					\$ _____

DIVISION "B" STREAM CROSSING

1.	Install 6-Inch PE Stream Crossing at McSwain Branch. Including Installation of PE Water Line via Directional Drilling, PE to PVC Transition Fittings, 6-Inch x 6-Inch Tapping Sleeve and Tapping Valve, Valve Box and Concrete Collar, Cut, Cap and Block Existing 6-Inch Water Line, Test Meter Assembly, and Fiberglass Line Marker. Furnish and Install, Complete.	1	L.S.	\$ _____	\$ _____
2.	Install 6-Inch PE Stream Crossing at Kiskey Branch. Including Installation of PE Water Line via Directional Drilling, PE to PVC Transition Fittings, 6-Inch x 6-Inch Tapping Sleeve and Tapping Valve, Valve Box and Concrete Collar, Cut, Cap and Block Existing 6-Inch Water Line, Test Meter Assembly, and Fiberglass Line Marker. Furnish and Install, Complete.	1	L.S.	\$ _____	\$ _____
3.	Install 6-Inch PE Stream Crossing at Murphy Ford. Including Installation of PE Water Line via Directional Drilling, PE to PVC Transition Fittings, 6-Inch x 6-Inch Tapping Sleeve and Tapping Valve, Valve Box and Concrete Collar, Cut, Cap and Block Existing 6-Inch Water Line, Test Meter Assembly, and Fiberglass Line Marker. Furnish and Install, Complete.	1	L.S.	\$ _____	\$ _____
4.	Install 6-Inch PE Stream Crossing at Locust Branch. Including Installation of PE Water Line via Directional Drilling, PE to PVC Transition Fittings, 6-Inch x 6-Inch Tapping Sleeve and Tapping Valve, Valve Box and Concrete Collar, Cut, Cap and Block Existing 6-Inch Water Line, Test Meter Assembly, and Fiberglass Line Marker. Furnish and Install, Complete.	1	L.S.	\$ _____	\$ _____
SUBTOTAL DIVISION "B"					\$ _____

CONTRACT 371-20-01 WATER SYSTEM IMPROVEMENTS,
 PHASE 11 - ZONE METER AND RIVER CROSSING INSTALLATION
 ESTILL COUNTY WATER DISTRICT NO. 1
 ESTILL COUNTY, KENTUCKY

Item No.	Description	Quantity	Unit	Unit Price	Total Cost
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DIVISION "C" MISCELLANEOUS

1.	Crushed Stone on Order of the Engineer, Furnish and Install, Complete.	250	Tons	\$ _____	\$ _____
2.	Bituminous Surface, Furnish and Install Complete.	100	Tons	\$ _____	\$ _____
	SUBTOTAL DIVISION "C"				\$ _____

SUMMARY

DIVISION "A" ZONE METER INSTALLATION	\$ _____
DIVISION "B" STREAM CROSSING	\$ _____
DIVISION "C" MISCELLANEOUS	\$ _____
TOTAL BASE BID CONTRACT 371-20-01	\$ _____

BID BOND

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

Estill County Water District No. 1
76 Cedar Grove Road
Irvine, Kentucky 40336

BID

Bid Due Date: January 21, 2021, at 10:00 a.m.
Description (*Project Name— Include Location*): Contract 371-20-01, Water System Improvements,
Phase 11—Zone Meter and River Crossing Installation, Estill County Water District No. 1

BOND

Bond Number:

Date:

Penal sum _____

\$

(Words)

(Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER

SURETY

(Seal)

(Seal)

Bidder's Name and Corporate Seal

Surety's Name and Corporate Seal

By:

Signature

By:

Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest:

Signature

Attest:

Signature

Title

Title

Note: Addresses are to be used for giving any required notice.

Provide execution by any additional parties, such as joint venturers, if necessary.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
 - 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2 All Bids are rejected by Owner, or
 - 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

QUALIFICATIONS STATEMENT

THE INFORMATION SUPPLIED IN THIS DOCUMENT IS CONFIDENTIAL TO THE EXTENT PERMITTED BY LAWS AND REGULATIONS

1. SUBMITTED BY:

Official Name of Firm: _____

Address: _____

2. SUBMITTED TO: _____

3. SUBMITTED FOR: _____

Owner: _____

Project Name: _____

TYPE OF WORK: _____

4. CONTRACTOR'S CONTACT INFORMATION

Contact Person: _____

Title: _____

Phone: _____

Email: _____

5. AFFILIATED COMPANIES:

Name: _____

Address: _____

6. TYPE OF ORGANIZATION:

SOLE PROPRIETORSHIP

Name of Owner: _____

Doing Business As: _____

Date of Organization: _____

PARTNERSHIP

Date of Organization: _____

Type of Partnership: _____

Name of General Partner(s): _____

CORPORATION

State of Organization: _____

Date of Organization: _____

Executive Officers:

- President: _____

- Vice President(s): _____

- Treasurer: _____

- Secretary: _____

LIMITED LIABILITY COMPANY

State of Organization: _____

Date of Organization: _____

Members: _____

JOINT VENTURE

Sate of Organization: _____

Date of Organization: _____

Form of Organization: _____

Joint Venture Managing Partner

- Name: _____

- Address: _____

Joint Venture Managing Partner

- Name: _____

- Address: _____

Joint Venture Managing Partner

- Name: _____

- Address: _____

7. LICENSING

Jurisdiction: _____

Type of License: _____

License Number: _____

Jurisdiction: _____

Type of License: _____

License Number: _____

8. CERTIFICATIONS

CERTIFIED BY:

Disadvantage Business Enterprise: _____

Minority Business Enterprise: _____

Woman Owned Enterprise: _____

Small Business Enterprise: _____

Other (_____): _____

9. BONDING INFORMATION

Bonding Company: _____

Address: _____

Bonding Agent: _____

Address: _____

Contact Name: _____

Phone: _____

Aggregate Bonding Capacity: _____

Available Bonding Capacity as of date of this submittal: _____

10. FINANCIAL INFORMATION

Financial Institution: _____

Address: _____

Account Manager: _____

Phone: _____

INCLUDE AS AN ATTACHMENT AN AUDITED BALANCE SHEET FOR EACH OF THE LAST 3 YEARS ONLY IF REQUIRED BY OWNER SUBSEQUENT TO RECEIPT OF BIDS.

11. CONSTRUCTION EXPERIENCE:

Current Experience:

List on **Schedule A** all uncompleted projects currently under contract (If Joint Venture list each participant's projects separately).

Previous Experience:

List on **Schedule B** all projects completed within the last 5 Years (If Joint Venture list each participant's projects separately).

Has firm listed in Section 1 ever failed to complete a construction contract awarded to it?

YES NO

If YES, attach as an Attachment details including Project Owner's contact information.

Has any Corporate Officer, Partner, Joint Venture participant or Proprietor ever failed to complete a construction contract awarded to them in their name or when acting as a principal of another entity?

YES NO

If YES, attach as an Attachment details including Project Owner's contact information.

Are there any judgments, claims, disputes or litigation pending or outstanding involving the firm listed in Section 1 or any of its officers (or any of its partners if a partnership or any of the individual entities if a joint venture)?

YES NO

If YES, attach as an Attachment details including Project Owner's contact information.

12. SAFETY PROGRAM (ONLY IF REQUESTED AFTER BIDDING):

Name of Contractor's Safety Officer: _____

Include the following as attachments:

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) OSHA No. 500- Log & Summary of Occupational Injuries & Illnesses for the past 5 years.

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) list of all OSHA Citations & Notifications of Penalty (monetary or other) received within the last 5 years (indicate disposition as applicable) - IF NONE SO STATE.

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) list of all safety citations or violations under any state all received within the last 5 years (indicate disposition as applicable) - IF NONE SO STATE.

Provide the following for the firm listed in Section V (and for each proposed Subcontractor furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) the following (attach additional sheets as necessary):

Workers' compensation Experience Modification Rate (EMR) for the last 5 years:

YEAR	_____	EMR	_____
YEAR	_____	EMR	_____
YEAR	_____	EMR	_____
YEAR	_____	EMR	_____
YEAR	_____	EMR	_____

Total Recordable Frequency Rate (TRFR) for the last 5 years:

YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____

Total number of man-hours worked for the last 5 Years:

YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____
YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____
YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____
YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____
YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____

Provide Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) Days Away From Work, Days of Restricted Work Activity or Job Transfer (DART) incidence rate for the particular industry or type of Work to be performed by Contractor and each of Contractor's proposed Subcontractors and Suppliers) for the last 5 years:

YEAR	_____	DART	_____
YEAR	_____	DART	_____
YEAR	_____	DART	_____
YEAR	_____	DART	_____
YEAR	_____	DART	_____

13. EQUIPMENT:

MAJOR EQUIPMENT:

List on **Schedule C** all pieces of major equipment available for use on Owner's Project.

I HEREBY CERTIFY THAT THE INFORMATION SUBMITTED HEREWITH, INCLUDING ANY ATTACHMENTS, IS TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

NAME OF ORGANIZATION: _____

BY: _____

TITLE: _____

DATED: _____

NOTARY ATTEST:

SUBSCRIBED AND SWORN TO BEFORE ME

THIS _____ DAY OF _____, 20____

NOTARY PUBLIC - STATE OF _____

MY COMMISSION EXPIRES: _____

REQUIRED ATTACHMENTS

1. Schedule A (Current Experience).
2. Schedule B (Previous Experience).
3. Schedule C (Major Equipment).
4. Evidence of authority for individuals listed in Section 7 to bind organization to an agreement.
5. Resumes of officers and key individuals (including Safety Officer) of firm named in Section 1.
6. Additional items as pertinent.
7. Owner may require submittal of the following subsequent to receipt of bids:
 - a. Audited balance sheet for each of the last 3 years for firm named in Section 1.
 - b. Required safety program submittals listed in Section 12.

SCHEDULE A

CURRENT EXPERIENCE

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				

SCHEDULE B

PREVIOUS EXPERIENCE (Include ALL Projects Completed within last 5 years)

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				

SCHEDULE B

PREVIOUS EXPERIENCE (Include All Projects Completed within last 5 years)

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				

SCHEDULE C - LIST OF MAJOR EQUIPMENT AVAILABLE

ITEM	PURCHASE DATE	CONDITION	ACQUIRED VALUE

**AGREEMENT
BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)**

THIS AGREEMENT is by and between Estill County Water District No. 1 (“Owner”) and
_____ (“Contractor”).

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

ARTICLE 2 – THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: Contract 371-20-01, Water System Improvements, Phase 11 – Zone Meter and River Crossing Installation, Estill County Water District No. 1, Estill County, Kentucky.

ARTICLE 3 – ENGINEER

3.01 The part of the Project that pertains to the Work has been designed by Bell Engineering, 2480 Fortune Drive, Suite 350, Lexington, Kentucky 40513.

3.02 The Owner has retained Bell Engineering (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.02 *Contract Times: Days*

A. The Work will be substantially completed within 90 days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 120 days after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. Substantial Completion: Contractor shall pay Owner \$500.00 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.
2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$500.00 for each day that expires after such time until the Work is completed and ready for final payment.
3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

4.04 *Special Damages*

- A. In addition to the amount provided for liquidated damages, Contractor shall reimburse Owner for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times.

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:

- A. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 30th day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract
 - a. 90 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and

- b. 90 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 90 percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06.

ARTICLE 7 – INTEREST

Not applicable.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

- 8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:
- A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
 - B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
 - E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.
 - F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

- A. The Contract Documents consist of the following:
 - 1. This Agreement (pages 1 to ____, inclusive).
 - 2. Performance bond (pages __ to ____, inclusive).
 - 3. Payment bond (pages __ to ____, inclusive).
 - 4. Other bonds.
 - a. _____ (pages __ to ____, inclusive).
 - 5. General Conditions (pages __ to ____, inclusive).
 - 6. Supplementary Conditions (pages __ to ____, inclusive).
 - 7. Specifications as listed in the table of contents of the Project Manual.
 - 8. Drawings (not attached but incorporated by reference) consisting of __ sheets with each sheet bearing the following general title: Contract 371-20-01, Water System Improvements, Phase 11—Zone Meter and River Crossing Installation, Estill County Water District No. 1, Estill County, Kentucky.
 - 9. Addenda (numbers __ to ____, inclusive).
 - 10. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages __ to ____, inclusive).
 - 11. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.

- D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 *Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

OWNER: ESTILL COUNTY WATER DISTRICT NO. 1

CONTRACTOR:

By: _____

Title: _____

By: _____

Title: _____

(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

75 Cedar Grove Road

Irvine, Kentucky 40336

Address for giving notices:

License No.: _____
(where applicable)

(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

PERFORMANCE BOND

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):*

Estill County Water District No. 1
76 Cedar Grove Road
Irvine, Kentucky 40336

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location):* Contract 371-20-01, Water System Improvements, Phase 11 – Zone Meter and River Crossing Installation, Estill County Water District No. 1, Estill County, Kentucky

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form: None See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal *(seal)*

Surety's Name and Corporate Seal *(seal)*

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed

by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all

valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

PAYMENT BOND

CONTRACTOR *(name and address)*:

SURETY *(name and address of principal place of business)*:

OWNER *(name and address)*:

Estill County Water District No. 1
76 Cedar Grove Road
Irvine, Kentucky 40336

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location)*: Contract 371-20-01, Water System Improvements, Phase 11 – Zone Meter and River Crossing Installation, Estill County Water District No. 1, Estill County, Kentucky

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:

Amount:

Modifications to this Bond Form: None See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

(seal)
Contractor's Name and Corporate Seal

(seal)
Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond shall arise after the following:
 - 5.1 Claimants who do not have a direct contract with the Contractor,
 - 5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2 Pay or arrange for payment of any undisputed amounts.
 - 7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. **Definitions**
 - 16.1 **Claim:** A written statement by the Claimant including at a minimum:
 1. The name of the Claimant;
 2. The name of the person for whom the labor was done, or materials or equipment furnished;
 3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
 4. A brief description of the labor, materials, or equipment furnished;
 5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
 6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
 7. The total amount of previous payments received by the Claimant; and
 - 16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
 - 16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
 - 16.4 **Owner Default:** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
 - 16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.
18. Modifications to this Bond are as follows:

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer

has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5101 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.
27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or “RPR” includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals and the performance of related construction activities.
35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.
38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:*
1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:*
1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:*
1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).
- E. *Furnish, Install, Perform, Provide:*
1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. *Bonds*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner’s Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or

computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 *Reference Standards*

- A. Standards Specifications, Codes, Laws and Regulations
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 - 2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

- A. *Reporting Discrepancies:*
 - 1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict,

error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date.

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 2. abnormal weather conditions;
 3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.

- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

- 1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
- 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part

by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
 - 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 - 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
 2. is of such a nature as to require a change in the Drawings or Specifications; or
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

- c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
 1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
 - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after

becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Possible Price and Times Adjustments:*
 - 1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
 - d. Contractor gave the notice required in Paragraph 5.05.B.
 - 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 - 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings*: The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 2. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is

maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 - 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).

4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 2. claims for damages insured by reasonably available personal injury liability coverage.
 3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
 - a. Such insurance shall be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability:* Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor's pollution liability insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result

of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:
1. include at least the specific coverages provided in this Article.
 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.
- B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 *Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
 - 1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
 - 2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
 - 3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
 - 4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).

5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance:* If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:
 - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the

policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 Supervision and Superintendence

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 Labor; Working Hours

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.03 Services, Materials, and Equipment

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and

guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 "Or Equals"

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) it has a proven record of performance and availability of responsive service; and
 - 4) it is not objectionable to Owner.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 *Substitutes*

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
 - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
 - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 - 3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - a. shall certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design,
 - 2) be similar in substance to that specified, and
 - 3) be suited to the same use as that specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from that specified, and

- 2) available engineering, sales, maintenance, repair, and replacement services.
- d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.

- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

- O. Nothing in the Contract Documents:
1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.08 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

7.09 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.10 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.12 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
 - C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
 - D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
 - E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
 - F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
 - G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or

exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements:*

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to

provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

2. *Samples:*
 - a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.
3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.
- D. *Engineer's Review:*
 1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.
 5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
 6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
 7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.
2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. use or occupancy of the Work or any part thereof by Owner;
 5. any review and approval of a Shop Drawing or Sample submittal;
 6. the issuance of a notice of acceptability by Engineer;
 7. any inspection, test, or approval by others; or
 8. any correction of defective Work by Owner.

- D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop

Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. an itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. the extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner for whom the Owner is responsible causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

9.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during

or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.07 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
 - 1. *Change Orders:*
 - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times. Cost, pricing, and certification for change orders exceeding \$100,000.00 is required by DOW Procurement Guidance for Construction and Equipment Contracts.
 - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
 - 2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract

Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

3. *Field Orders*: Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.03 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.04 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
 1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).
- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.04.C.2.a and 11.04.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the

requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
 2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
 3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 Execution of Change Orders

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and

4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12 – CLAIMS

12.01 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation:*
1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If

the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 Cost of the Work

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and

retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
 - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with

Paragraph 6.05), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
- 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee:* When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.

E. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

- B. *Cash Allowances*: Contractor agrees that:
 - 1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 - 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

13.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

14.01 Access to Work

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

14.02 Tests, Inspections, and Approvals

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
 - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 - 3. by manufacturers of equipment furnished under the Contract Documents;
 - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 - 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to

cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will

include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments:*
1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
 2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
 3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.
- C. *Review of Applications:*
1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
 2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
 4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
 5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
 6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

- e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due:*

- 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner:*

- 1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. the Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. the Contract Price has been reduced by Change Orders;
 - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - l. there are other items entitling Owner to a set off against the amount recommended.
- 2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount

remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.
 - 2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

- A. *Application for Payment:*
 - 1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of

inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all disputes that Contractor believes are unsettled; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.

D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation,

including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such other adjacent areas;
 - 2. correct such defective Work;
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses,

and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for

expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this Article:
 - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and
 - 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this Article, Owner or Contractor may:
 - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or
 - 2. agree with the other party to submit the dispute to another dispute resolution process; or
 - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
 - 1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SUPPLEMENTARY CONDITIONS

Prepared by



Issued and Published Jointly by



ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

SC-1.01 Defined Terms

- A. Section 00700, following Article 1.01.A.48, add the following paragraph:
49. Bonds--Bid, performance and payment bonds, and/or other instruments of security.
- B. Section 00700--Article 1.01.A.27, change the first sentence to read: "A written notice by Owner to Contractor (with copy to Engineer) . . ."
- C. Section 00700, following Article 1.01.A.49, add the following paragraph:
50. Partial Utilization--Placing a portion of the Work in service for the purpose for which it is intended (or a related purpose) before reaching completion for all the Work.
- D. Section 00700, following Article 1.01.A.50, add the following paragraph:
51. Special Conditions--Additional instructions to the Bidder/Contractor denoting special construction or other requirements applicable to this Contract.
- E. Section 00700--Article 1.01.31, delete this paragraph in its entirety.
- F. Section 00700--Article 1.01.A.37, revise the paragraph to read "Lands or areas indicated in the Contract Documents as being furnished by the Owner upon which the work is to be performed, including fee simple property, rights-of-way, permanent and temporary construction easements, encroachment permits from governmental and private entities, and such other lands furnished by the Owner which are designated for the use of the Contractor in the completion of the Work."
- G. Section 00700, following Article 1.01.A.51, add the following paragraph:
52. Written Notice--Any notice to any party of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at his last given address, or delivered in person to said party or his authorized representative on the Work.

ARTICLE 2 – PRELIMINARY MATTERS

SC-2.05 Initial Acceptance of Schedules

- A. SC-2.05, delete paragraph A and replace with the following paragraph A:
 - A. Initial Acceptance of Schedules
The Contractor shall, within 5 days after the Work commences on the Contract or another period of time determined by the Owner/Engineer, prepare and submit to the Owner/Engineer:
 1. Three copies of a practicable schedule showing the order in which the Contractor proposes to perform the Work, and the dates on which the Contractor contemplates starting and completing to several salient features of the Work (including acquiring materials, plant, and equipment). The Schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of Work schedules for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Owner/Engineer may withhold approval of progress payments until the Contractor submits the required schedule.

2. The Contractor shall enter the actual progress on the chart at the end of each month during the construction period and upon doing so shall immediately deliver 3 copies of the annotated schedule to the Owner/Engineer.
3. If the Contractor falls behind the progress schedule, the Contractor shall take such steps as may be necessary to improve the progress. Such steps may include increasing the number of shifts, overtime operations, days of work, amount of construction plant, or all of them, and to submit for review any supplementary schedule or schedules in chart form necessary to demonstrate the manner in which the agreed rate of progress will be regained, all without additional cost to the Owner.
4. Failure of the Contractor to prosecute the Work with sufficient diligence to ensure completion within the time specified in the Contract, or failure of the Contractor to take necessary steps to improve the Contractor's progress should it fall behind the Contractor's schedule shall be grounds for the Owner to terminate the Contractor's right to proceed with the Work, or any separate part of it, in accordance with the terms of the Contract.
5. A schedule of Shop Drawing submissions acceptable to the Engineer as providing a workable arrangement for processing the submissions.
6. A schedule of values for all of the work which will include quantities and prices of items aggregating the Contract Price and will subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. the schedule of values must be acceptable to the Engineer as to form and substance.
7. The Contractor shall also submit a schedule of payments that the Contractor anticipates the Contractor will earn during the course of the Work.

ARTICLE 3 - DOCUMENTS: INTENT, REQUIREMENTS, REUSE

SC-3.01 Intent

- A. Insert the following new paragraphs under Article 3.01:
 - B. The Contract Documents comprise the entire Agreement between the Owner and the Contractor concerning the Work.
 - C. When words which have a well-known technical or trade meaning are used to describe the Work, materials or equipment, such words shall be interpreted in accordance with that meaning.
 - D. In case of conflict between the Drawings and Specifications, the Specifications shall govern unless specifically noted to the contrary in the Drawings. Figure dimensions on Drawings shall govern over scale dimensions, and detailed drawings shall govern over General Drawings.

ARTICLE 4 - COMMENCEMENT AND PROGRESS OF THE WORK

SC-4.01 Commencement of Contract Time; Notice to Proceed

- A. Change the last sentence to read:

“In no event will the Contract Times commence to run later than the one hundred forty-fifth (145) days after the day of Bid opening or the thirtieth (30) day after the Effective Date of the Contract, whichever date is earlier.”

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

SC-5.01 Availability of Lands

- A. Add the following new paragraph under Article 5.01:
 - D. All land required for this Project is presently owned by the Owner or is under condemnation. The limits of ownership are shown on the Drawings. Easements for pipelines have been obtained by the Owner or are under condemnation. Easement widths are shown on the Drawings.

SC-5.03 Subsurface and Physical Conditions

- A. Delete paragraphs 5.03.A and 5.03.B in their entirety and insert the following:
 - A. No reports of explorations or tests of subsurface conditions at or adjacent to the Site, or drawings of physical conditions relating to existing surface or subsurface structures at the Site, are known to Owner.

SC-5.04 Differing Subsurfaces or Conditions

- A. Add the following paragraphs:
 - E. Damages
 - 1. Repair to existing utilities and facilities damaged by the Contractor's construction forces shall be considered as a part of the Contract covered only by the prices bid for the new construction. The only exceptions to this provision, wherein extra compensation will be authorized, are:
 - a. Relocation of an existing facility due to direct conflict with the new pipeline.
 - b. Relocation (outside of limits of maximum allowable trench widths) of an existing facility presently located within the bounds of maximum allowable trench width, where necessitated for assurance against future damage due to settlement or to permit reasonable access to the new work.
 - 2. Repair to damaged underground utilities, whether reimbursable or otherwise, must meet the requirements of the agency in charge of that particular utility.
 - 3. The intent of this article is to assure compensation to the Contractor for changes in existing utilities reasonably necessary, and at the same time, to protect the Owner against excessive damages due to carelessness of the Contractor's construction forces.
 - 4. Compensation for extra work covered herein shall be in accordance with other provisions of the general conditions.

SC-5.05 Underground Facilities

- A. Add the following paragraphs:
 - F. The layout of the work shall be the responsibility of the Contractor and shall be subject to checking by the Engineer. The Engineer shall establish base lines and a system of bench levels for the Contractor's use as required. All instruments, stakes, barricades, traffic signs, flags, and other materials necessary, and personnel needed for establishing and marking lines, grades, and structure location during construction, shall be the responsibility of the Contractor.

The Contractor's personnel engaged in the layout work described herein and the aides furnished to the Engineer shall be fully capable of performing the duties set out herein and shall be fully qualified for the work required.

2. Water, Gas, and Sewage Force Mains

Trench line stations will be set by the Contractor ahead of trenching. These will be set at least every 100 feet of pipeline and at the locations of all pipeline accessories.

SC-5.06 Delete Paragraphs 5.06.A and 5.06.B in their entirety and insert the following:

- A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.
- B. Not Used.

ARTICLE 6 – BONDS AND INSURANCE

SC-6.03 Contractor's Insurance

- A. Add the following new paragraph immediately after Paragraph 6.03.J:
 - K. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

- 1. Workers' Compensation, and related coverages under Paragraphs 6.03.A.1 and A.2 of the General Conditions:

State:	<u>Statutory</u>
Federal, if applicable (e.g., Longshoreman's):	<u>Statutory</u>
Jones Act coverage, if applicable:	
Bodily injury by accident, each accident	\$500,000 min
Bodily injury by disease, aggregate	\$500,000 min
Employer's Liability:	
Bodily injury, each accident	\$500,000 min
Bodily injury by disease, each employee	\$500,000 min
Bodily injury/disease aggregate	\$500,000 min
Foreign voluntary worker compensation	<u>Statutory</u>

- 2. Contractor's Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:

General Aggregate	\$2,000,000 min
Products - Completed Operations Aggregate	\$2,000,000 min

Personal and Advertising Injury	\$1,000,000 min
Each Occurrence (Bodily Injury and Property Damage)	\$1,000,000 min

3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

Bodily Injury:

Each person	\$1,000,000 min)
Each accident	\$1,000,000 min)

Property Damage:

Each accident	\$1,000,000 min)
or	
Combined Single Limit of	\$1,000,000 min

4. Excess or Umbrella Liability:

Per Occurrence	\$2,000,000 min
General Aggregate	\$2,000,000 min

5. Contractor's Pollution Liability

Each Occurrence	\$ _____
General Aggregate	\$ _____

If box is checked, Contractor is not required to provide Contractor's Pollution Liability insurance under this Contract

6. Additional Insureds: In addition to Owner and Engineer, include as additional insureds the following:

Estill County Water District No. 1 (Client—List)

Bell Engineering

7. Contractor's Professional Liability

Each Claim	\$2,000,000 min
Annual Aggregate	\$2,000,000 min

SC-6.05 Property Insurance

- A. Add the following to the list of requirements in Paragraph 6.05.A, as a numbered item:
14. be subject to a deductible amount of no more than \$1,000.00 for direct physical loss in any one occurrence.
- B. Add the following new subparagraphs after subparagraph 6.05.A.1:
- a. include the interests of Engineer and any other individuals or entities identified herein, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;
 - b. in addition to the individuals and entities specified, include as additional insureds, the following:
 - 1) Engineer
Bell Engineering
2480 Fortune Drive, Suite 350
Lexington, Kentucky 40509
 - 2) Owner
Estill County Water District No. 1
76 Cedar Grove Road
Irvine, Kentucky 40336
- C. Add the following new subparagraph after subparagraph 6.05.A.1:
- a. In addition to Owner, Contractor, and all Subcontractors, include as insureds the following:
- D. Add the following to the list of items in Paragraph 6.05.A, as numbered items:
15. include for the benefit of Owner loss of profits and soft cost coverage including, without limitation, fixed expenses and debt service for a minimum of 12 months with a maximum deductible of 30 days, plus attorneys fees and engineering or other consultants' fees, if not otherwise covered;
 16. include, in addition to the Contract Price amount, the value of the following equipment and materials to be installed by the Contractor but furnished by the Owner or third parties: None.
 17. include by express endorsement coverage of damage to Contractor's equipment.
- E. Delete Paragraph 6.05.A of the General Conditions and substitute the following in its place:
- Contractor shall provide and maintain installation floater insurance for property under the care, custody, or control of Contractor. The installation floater insurance shall be a broad form or "all risk" policy providing coverage for all materials, supplies, machinery, fixtures, and equipment that will be incorporated into the Work. Coverage under the Contractor's installation floater will include:
1. any loss to property while in transit,
 2. any loss at the Site, and
 3. any loss while in storage, both on-site and off-site.
- Coverage cannot be contingent on an external cause or risk, or limited to property for which the Contractor is legally liable. The Contractor will be solely responsible for any deductible carried under this coverage and claims on materials, supplies, machinery, fixture, and equipment that will

be incorporated into the Work while in transit or in storage. This policy will include a waiver of subrogation applicable to Owner, Contractor, Engineer, all Subcontractors, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them.

- F. Delete the first sentence of Paragraph 6.05.A and insert the following sentence in its place:
- Owner shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations).
- G. Add the following subparagraphs to Article SC-6.05:
- G. Where work involves railroad rights-of-way, the Contractor shall purchase and maintain at the Contractor's expense for the full contract Period or as required, Railroad Protective Insurance in an amount acceptable to the railroad company.
- H. On federally funded projects, the Contractor shall purchase and maintain at the Contractor's expense for the full Contract Period or as required, flood insurance where the Project is in a designated flood hazard area in which federal flood insurance is available.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

SC-7.01 Supervision and Superintendence

- A. Following paragraph 7.01.B, add a new paragraph C as follows:
- C. The Contractor shall at all times be responsible for the conduct and discipline of his employees and/or any Subcontractor or persons employed by the Subcontractor. All workmen must have sufficient knowledge and skill and experience to perform properly the work assigned to them. Any superintendent, foreman, or workman employed by the Contractor or Subcontractor who does not perform his work in a skillful manner or acts in an incompetent, disorderly, or intemperate manner shall, at the written request of the Owner, be discharged immediately.

SC-7.02 Labor; Working Hours

- A. Add the following new subparagraphs immediately after Paragraph 7.02.B:
1. Regular working hours will be Monday to Friday, 7:00 a.m. to 6:00 p.m.
 2. Owner's legal holidays are New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, and Christmas Day.
- B. Amend the first and second sentences of Paragraph 7.02.B to state "...all Work at the Site shall be performed during regular working hours. Contractor will not perform Work on weekends or any legal holiday." Contractor will be responsible for compliance with OSHA (P.L. 91-596) and the Contact Work Hours and Safety Standard Act (P.L. 91-54).
- C. Following Paragraph 7.02.B, add a new Paragraph C as follows:
- C. Contractor shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If Contractor is responsible but does not pay, or if the parties are unable to agree as

to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

- D. Add the following new subparagraph immediately after Paragraph 7.02.C:
 - 1. For purposes of administering the foregoing requirement, additional overtime costs are defined as Engineer's standard hourly rates, revised annually.

SC-7.03 Services, Materials, and Equipment

- A. Add the following new paragraphs after paragraph 7.03.C:
 - D. Any equipment damaged or which has been subjected to possible damage by reason of inundation, improper storage and/or protection during the construction period of a project, shall be handled only as follows:
 - 1. Be replaced with new equipment.
 - 2. With approval of the Engineer, be returned to the manufacturer of the equipment, or his authorized repair agency, for inspection and repair provided; however, that such repair after inspection will place the equipment in new condition, and restore the manufacturer's guarantee the same as for new equipment.
 - 3. This is particularly applicable to, but not limited to, electric motors, motor controls, meter and gauges, and equipment with bearings.
 - E. Materials, supplies, and equipment shall be in accordance with samples submitted by the Contractor and accepted by the Engineer.
 - F. Materials, supplies, or equipment to be incorporated into the Work shall not be purchased by the Contractor or the Subcontractor subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.
 - G. The use of second hand and/or salvaged materials will not be permitted unless specifically provided for in the detailed Specifications. Materials and equipment shall be new when turned over to the Owner.
 - H. All materials and/or equipment to be removed from existing structures and not specifically specified to be reused shall remain the property of the Owner. Such materials and/or equipment shall be stored by the Contractor on sites as directed by the Owner.

SC-7.12 Safety and Protection

- A. The Contractor is required to inquire with the Owner and obtain a copy of any and all safety programs the Owner has.

SC-7.16 Shop Drawings, Samples, and Other Submittals

- A. Add the following to the existing paragraph 7.16.B.3:

No portion of the work requiring a shop drawing, working drawing, sample, or catalog data shall be started nor shall any materials be fabricated or installed prior to the review or qualified review of such item. The Owner will not be liable for any expense or delay due to corrections or remedies required to accomplish conformity.

B. Add the following to the existing paragraph 7.16.A.2:

The certification statement shall include the following information: contract name, contract number, submittal number, contractor's name, contractor's signature (original, not initialed), date, and reference to meeting the obligations required under Article 7.16.A.

C. Add the following new paragraphs under Article 7.16.A:

4. Shop drawing submittals shall contain:

- a. The date of submission and the dates of any previous submissions.
- b. The project title, contract number, and submittal number.
- c. Contractor identification.
- d. The names of:
 - (1) Contractor
 - (2) Supplier
 - (3) Manufacturer
- e. Identification of the product, with the Specification section number.
- f. Field dimensions, clearly identified as such.
- g. Relation to adjacent or critical features of the work or material.
- h. Applicable standards, such as ASTM, or federal Specification numbers.
- i. Identification of deviations from Contract Documents.
- j. Identification of revisions on resubmittals.
- k. An 8-inch x 3-inch blank space for Contractor's and Engineer's stamps.
- l. Critical path notation as required.

5. Coordination of Submittal Times

- a. The Contractor shall prepare and transmit each submittal sufficiently in advance of performing the related Work or other applicable activities, or within the time specified in the individual Work section of the Specifications, so that the installation will not be delayed by processing times, including disapproval and resubmittal (if required), coordination with other submittals, testing, purchasing, fabrication, delivery, and similar sequenced activities.

D. Add the following new subparagraph under paragraph 7.16.E:

2. The Contractor shall bear the cost for review and processing of shop drawings after the second resubmittal.

ARTICLE 8 – OTHER WORK AT THE SITE

Not applicable.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

Not applicable.

ARTICLE 10 – ENGINEER’S STATUS DURING CONSTRUCTION

SC-10.01 Owner’s Representative

- A. Add a new paragraph B under existing paragraph 10.01.A:
 - B. Limit of Liability of Public Officials and Owner’s Agents
 - 1. In carrying out any of the provisions of the Contract or in exercising any power or authority to him thereby, there shall be no personal liability upon the Engineer or the Owner’s other authorized assistants or employees, it being understood that in such matters they act as the agents and representatives of the Owner.

SC-10.03 Project Representative

- A. Add the following new paragraphs immediately after Paragraph 10.03.A:
 - B. The Resident Project Representative (RPR) will be Engineer’s representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR’s actions.
 - 1. General: RPR’s dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR’s dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.
 - 2. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.
 - 3. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.
 - 4. Liaison
 - a. Serve as Engineer’s liaison with Contractor. Working principally through Contractor’s authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
 - b. Assist Engineer in serving as Owner’s liaison with Contractor when Contractor’s operations affect Owner’s on-Site operations.
 - c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.
 - 5. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.
 - 6. Shop Drawings and Samples
 - a. Record date of receipt of Samples and Contractor-approved Shop Drawings.
 - b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.

- c. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.
- 7. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, if any, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.
- 8. Review of Work and Rejection of Defective Work
 - a. Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Report to Engineer whenever RPR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
- 9. Inspections, Tests, and System Startups
 - a. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.
 - b. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems startups.
- 10. Records
 - a. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.
 - b. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.
 - c. Maintain records for use in preparing Project documentation.
- 11. Reports
 - a. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.
 - b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.

- c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.
 12. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.
 13. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.
 14. Completion
 - a. Participate in Engineer's visits to the Site to determine Substantial Completion, assist in the determination of Substantial Completion and the preparation of a punch list of items to be completed or corrected.
 - b. Participate in Engineer's final visit to the Site to determine completion of the Work, in the company of Owner and Contractor, and prepare a final punch list of items to be completed and deficiencies to be remedied.
 - c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the notice of acceptability of the work.
- C. The RPR shall not:
1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
 2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
 3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
 4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work.
 5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
 6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
 7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.
 8. Authorize Owner to occupy the Project in whole or in part.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

SC-13.01 Cost of the Work

A. Delete Paragraph 13.01.B.5.c in its entirety and insert the following in its place:

c. Construction Equipment and Machinery

- 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
- 2) Costs for equipment and machinery owned by Contractor will be paid at a rate shown for such equipment in the *Green Book* compiled and distributed by Associates Equipment Distributors, 615 West 22nd Street, Oak Brook, Illinois 60523. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs. Costs will include the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, shall cease to accrue when the use thereof is no longer necessary for the changed Work. Equipment or machinery with a value of less than \$1,000 will be considered small tools.

SC-13.03 Unit Price Work

A. Delete Paragraph 13.03.E in its entirety and insert the following in its place:

E. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:

1. if the extended price of a particular item of Unit Price Work amounts to 5 percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement; and
2. if there is no corresponding adjustment with respect to any other item of Work; and
3. if Contractor believes that Contractor has incurred additional expense as a result thereof, Contractor may submit a Change Proposal, or if Owner believes that the quantity variation entitles Owner to an adjustment in the unit price, Owner may make a Claim, seeking an adjustment in the Contract Price.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

SC-15.01 Progress Payments

A. In Paragraph 15.01.D, change “Ten days” to “Ten business days (or longer if required by the funding agency).”

SC-15.03 Substantial Completion

A. Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, shall be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

SECTION 00815

**LABOR REGULATIONS ON PUBLIC WORKS
KENTUCKY PROJECTS**

- A. All Public Works Projects submitted for bids and constructed by a Public Authority in the State of Kentucky are subject to the provisions of the Kentucky Revised Statutes, Chapter 337, entitled Wages and Hours as may be amended from time to time. Contractors submitting Bids for the specified project must consider the fact that in the event of an award it shall be his responsibility to comply with all aspects of the statutory requirements contained therein while engaged upon the project covered by these Specifications.
- B. In addition to the Wages and Hours requirements under Kentucky Statutes, if the Project to which these Specifications apply is funded in whole or in part by a federal grant or loan program whereby the U.S. Department of Labor is required to prescribe predetermined prevailing minimum wages, compliance with the currently applicable Federal labor regulations is also required.
- C. On federally funded projects, weekly payroll data for all the CONTRACTOR and Subcontractor employees must be furnished monthly to the federal agency designee or as may be prescribed by the agency at a preconstruction conference. While weekly wage data reports are not required to be filed with the Kentucky Department of Labor on federally assisted projects, one copy of the report must be filed with the OWNER and be available at the Public Authority's (OWNER) office for inspection by the Kentucky Department of Labor. The prime CONTRACTOR is responsible for payroll reporting compliance by all his Subcontractors.
- D. Federal labor regulations applicable to the Project for which these Specifications are applicable shall be those established by the Federal agency involved (if any). The CONTRACTOR and Subcontractor performing the Work under this Project must fulfill all requirements of the presently effective labor legislation and Executive Orders as listed below and any other Federal labor regulations which may be or may become applicable.
 - 1. Minimum Wages - Davis-Bacon Act
 - 2. "Anti-Kickback" Act, Copeland Act
 - 3. Contract Work Hours Standard Act - Overtime Compensation
 - 4. Non Discrimination - Civil Rights Act
 - 5. Equal Employment Opportunity - Executive Orders 11246 and 11375

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6. Elimination of segregated facilities
7. Certification of nonsegregated facilities

END OF SECTION

SECTION 00820

SPECIAL CONDITIONS

1. DESCRIPTION OF THE WORK; DESIGNATION OF OWNER AND ENGINEER

1.1 These Specifications and the accompanying Drawings describe the work to be done and the materials to be furnished for the construction of Contract 371-20-01, Water System Improvements, Phase 11 – Zone Meter and River Crossing Installation Estill County Water District No. 1, Estill County, Kentucky.

1.2 All references to the OWNER in these Specifications, Contract Documents and Drawings shall mean the Estill County Water District No. 1

1.3 All references to the ENGINEER in these Specifications, Contract Documents and Drawings shall mean Bell Engineering.

2. AVAILABLE FUNDS

2.1 The attention of all Bidders is directed to the fact that funds will be made available for the award of this Contract from the following sources:

Loan from Kentucky Infrastructure Authority (KIA) and local funds on hand

3. TIME OF COMPLETION

3.1 The number of days within which, or the dates by which the Work is to be substantially completed, and completed and ready for final payment, are set forth in the Agreement.

120 calendar days

4. LIQUIDATED DAMAGES

4.1 It is understood that time is of the essence of this Contract, and that the OWNER will sustain damages, monetary and otherwise, in the event of delay in completion of the work hereby contracted.

4.2 Therefore, if the said CONTRACTOR shall neglect, fail or refuse to complete the work within the time herein specified, or any proper extension thereof granted by the OWNER, then the CONTRACTOR does hereby agree, as a part consideration for the awarding of this Contract, to pay to the OWNER the amount specified in the Contract, not as a penalty but as liquidated damages for such breach of Contract as hereinafter set forth, for each and every calendar day that the CONTRACTOR shall be in default after the time stipulated in the Contract for completing the work.

4.3 The said amount is fixed and agreed upon by and between the CONTRACTOR and the OWNER because of the impracticability and extreme difficulty of

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fixing and ascertaining the actual damages the OWNER would in such event sustain, and said amount is agreed to be the amount of damages which the OWNER would sustain and said amount shall be retained from time to time by the OWNER from current periodical estimates.

4.4 Liquidated damages are fixed at the following amounts per calendar day of overrun beyond the date set for completion or authorized extension thereof for each of the Contracts, divisions, sections, or combinations thereof:

Contract 371-20-01-\$500.00 per calendar day

5. METHOD OF BIDDING

5.1 The work under this Contract shall be bid by unit price and/or lump sum as provided for in the Form of Proposal. This Contract shall be bid in full on the form provided.

5.2 The CONTRACTOR must bid all divisions and all listed unit price items and/or lump sums to complete a Contract. The OWNER will not award the work on divisions or sections within a Contract separately. Each Contract shall be bid separately and in full on the Form of Proposal provided.

5.3 In the case of major equipment item bidding, the CONTRACTOR must bid the base bid item.

5.5 The OWNER reserves the right, should financing considerations require or allow, to delete or add physical units to the unit price items bid. However, the monetary value of such deletions or additions shall not exceed 25 percent of the total amount bid for the Contract without specific approval of the CONTRACTOR.

5.6 If deletions or additions are made, comparison of bids will be made on the basis of portions of the Contract to be awarded and not on the total of the base bid made by the CONTRACTOR.

6. VIDEOTAPING AND PHOTOGRAPHS

6.1 Continuous video recording of preconstruction surface conditions is required for this Contract. All recording and photographs **must be completed and submitted to the ENGINEER for approval before any construction activity will be allowed**. Recording must be performed by persons experienced with this type equipment and must be acceptable to the ENGINEER. Recording and photography equipment used shall utilize digital media that the CONTRACTOR shall transfer to high-capacity USB media sticks. The digital recording format shall be a file type that is viewable on any standard Microsoft Windows based computer.

6.2 The video recording shall be supplemented with continuous audio description of the area traversed. Verbal description of problem areas and items of special interest shall be elaborated upon.

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6.3 All locations, streets and/or easements on or in which construction activity will occur shall be recorded for the complete length or boundary of the construction area.

6.4 An index shall be furnished for each USB media stick coordinating the location of the recorded area with the location of the proposed facilities as shown on the Drawings.

6.5 The CONTRACTOR shall be responsible for providing access to all areas to be recorded. All recordings shall be viewed by the ENGINEER before any construction is started. The CONTRACTOR shall provide USB media stick viewing equipment for the duration of the project.

6.6 The cost of preconstruction audio/video recording shall be at no additional cost to the OWNER, the cost being incorporated into the CONTRACTOR's unit price or lump sum bid for the items of work as listed on the Form of Proposal.

6.7 The CONTRACTOR is also urged to document on video any structure within a reasonable distance of his blasting or other work operations for reference and file.

6.8 Digital color print still photographs shall be used to supplement the continuous video recording of preconstruction conditions and/or pertinent construction items.

6.8.1 All photographs shall be compiled and saved onto a standard high-capacity USB media stick, along with an index coordinating the pictures with the location of the work shown on the drawings. Individual pictures shall be a minimum of 3 MB each.

6.9 Any photographs or audio/video recordings required by governing agencies will be the responsibility of the OWNER.

6.10 The CONTRACTOR shall submit to the ENGINEER a number of copies of the documentation media in accordance with the Contract Documents.

6.10.1 Video recordings or photography on high-capacity USB media sticks shall be submitted in a quantity greater than or equal to 4 copies.

7. MINIMUM WAGE RATES

7.1 The prevailing minimum wage rates will apply and will be incorporated by addendum.

8. SALES AND USE TAX

8.1 See Specification Section 00700, Article 7.09, for instructions.

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9. EXCAVATION

9.1 It is to be specifically noted that no separate payment for solid rock excavation will be made under this Contract. All excavation shall be considered unclassified, and payment for same included in the appropriate furnishing and laying or other items containing excavation.

10. PERMISSION TO USE PROPERTY OTHER THAN THAT PROVIDED BY OWNER

10.1 Should the CONTRACTOR desire or elect to use, pass over and/or encroach on private property other than that provided by the OWNER, either by fee simple title or right-of-way for a specific purpose, he shall obtain such rights and permission from the individual property owner at his own expense and risk.

11. TIE-IN TO EXISTING WATER MAINS

11.1 As far as possible, the locations and sizes of existing mains are indicated on the Drawings; however, exact locations, pipe materials and sizes cannot be guaranteed. It shall be the responsibility of the CONTRACTOR to locate and uncover existing lines, to which new mains are to be connected, and provide all connecting fittings of the correct size and type for each connection. Payment for the above shall be included in the unit price bid for each item used for the connection as indicated on the Drawings or as specified.

12. EXTRA FILL MATERIAL

12.1 Extra fill material required to complete the finished grading to the line and grade shown on the Drawings shall be obtained by the CONTRACTOR at no extra cost to the OWNER above that included in his lump sum bid.

13. SURFACE RESTORATION RETAINAGE

13.1 In the case of water mains, there will be retained from each monthly payment estimate from the unit prices for "Furnishing, Trenching, Laying and Backfilling" an amount of 5 percent of each pay request. Upon completion of clean-up work satisfactory to the ENGINEER, this retainage will be paid on the subsequent periodic payment estimate. The retainage and release of same shall be between manhole sections only, and no shorter distances shall be considered.

14. USE OF SPECIALS IN VERTICAL PLANE OPTIONAL

14.1 Where specials (fittings) are shown at change in grade of pipeline, the CONTRACTOR, at his option, may use fittings as shown with blocking, or he may, where possible without exceeding maximum allowable deflection in pipe joints, avoid the use of specials at grade changes, by increasing the trench depth, provided the pipe installed to such extra depth is designed to withstand the extra depth cover and the maximum internal pressure specified. No additional compensation will be given for installing the pipe at an extra depth to avoid the use of fittings and thrust blocking.

15. ACCESS TO THE WORK

15.1 The representatives of OWNER, ENGINEER, and Kentucky Division of Water shall have access to the work wherever it is in preparation or progress, and the CONTRACTOR shall provide proper facilities for such access and inspection.

16. ROCK SOUNDING

16.1 Where the approximate location of solid rock is indicated on the Drawings or where it is indicated that sounding did not reveal solid rock, this information is provided for estimating purposes only. While the information is believed to be reasonably correct, there is no guarantee of accuracy or adequacy in determining the actual quantity of solid rock to be removed, the location of solid rock, or the absence thereof.

17. BLASTING AND PREBLAST SURVEYS

17.1 The CONTRACTOR will be held liable for all damages caused by blasting operations required for the construction of this project. All blasting operations shall be performed in accordance with local municipal ordinances and state laws governing such operations, including the storage of explosives.

17.2 Special precautions are required when blasting near natural gas pipelines. The CONTRACTOR shall notify the OWNER of the gas line at or near the area of blasting prior to beginning the blasting operation. The CONTRACTOR shall, with or without assistance from the gas company, develop emergency procedures, planned in advance of each blast.

17.3 Preblast surveys are required on this project for the protection of all parties concerned. These surveys shall be conducted by independent firms specializing in blasting damage control safety.

17.4 Preblast surveys shall be detailed studies of all commercial, industrial, residential or other structures within the areas subject to damage as a result of the blasting operations. The surveys shall include the exterior and/or interior of the building and other improvements on the property such as concrete, brick or bituminous paved drives, parking areas, sidewalks, retaining walls or pillars subject to damage as a result of blasting operations. In rural areas, the surveys shall also include water sources such as wells, springs and dams for farm ponds.

17.5 Individual reports shall be prepared for each parcel of property surveyed within the given radius of the blasting area. Each report shall indicate the type and location of existing structural damage, or the fact that none exists, shown in detail by sketch supplemented by color photo, audio cassette tape supplemented by color photo or video tape, as the CONTRACTOR may elect. Should the video tape method be provided, a video projector shall be furnished for the project duration.

17.6 Preblast survey reports shall also include recommended blasting methods and techniques to preclude damage.

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17.7 One copy of each individual report shall be filed with the OWNER for his file and reference prior to the start of blasting operations.

17.8 The cost for preblast surveys shall be considered incidental to the work and shall be included in the bid price for the work.

END OF SECTION

00820-6

SUPPLEMENTAL GENERAL CONDITIONS

FOR

CLEAN WATER STATE REVOLVING FUND

DRINKING WATER STATE REVOLVING FUND

(Drinking Water and Wastewater)

Project Name: ECWD No. 1 Water System Improvements,
Phase 11 – Zone Meter and River Crossing Installation

Project Number: 371-20-01

The attached instructions and regulations as listed below shall be incorporated into the Specifications and comprise Special Conditions.

	<u>Attachment No.</u>
SRF Special Provisions	1
KRS Chapter 45A Kentucky Model Procurement Code	2
Equal Employment Opportunity (EEO) Documents:	
Notice of Requirement for Affirmative Action	3
Construction Contract Specifications	4
EEO Goals for Region 4 Economic Areas	5
Check List of EEO Documentation for Bidders	6
Employer Information Report EEO-1 (SF 100)	7
Labor Standards Provisions for Federally Assisted Construction	8
Certifications:	
Debarment, Suspension and Other Responsibility Matters	9
Anti-lobbying	10
Disadvantaged Business Enterprise (DBE) Program	11
Bonds and Insurance	12
Storm Water General Permit	13
Davis-Bacon Wage Rate Requirements	14
American Iron and Steel Requirement	15

SRF SPECIAL PROVISIONS

- (a) Line crossings of all roads and streets shall be done in accordance with the Kentucky Transportation Cabinet requirements as may be set forth in the Special Conditions.
- (b) Construction is to be carried out so as to prevent by-passing of flows during construction unless a schedule has been approved by the State or EPA, whichever is applicable. Siltation and soil erosion must be minimized during construction. All construction projects with surface disturbance of more than 1 acre during the period of construction must have a KPDES Storm Water General Permit. The permit can be found at this [webpage](#).

If you have any questions regarding the completion of this form call the Surface Water Permits Branch at (502) 564-3410.
- (c) Restore disturbed areas to original or better condition.
- (d) **Use of Chemicals:** All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, must show approval of either DOW or EPA. Use of all such chemicals and disposal of residues shall be in conformance with instructions on the manufacturer's label.
- (e) The construction of the project, including the letting of contracts in connection therewith, shall conform to the applicable requirements of state, territorial, and local laws and ordinances to the extent that such requirements do not conflict with Federal laws and this subchapter.
- (f) The owner shall provide and maintain competent and adequate supervision and inspection.
- (g) The Kentucky Infrastructure Authority and Kentucky Division of Water shall have access to the site and the project work at all times.
- (h) In the event Archaeological materials (arrowheads, stone tools, stone axes, prehistoric and historic pottery, bottles, foundations, Civil War artifacts, and other types of artifacts) are uncovered during the construction of this project, work is to immediately cease at the location and the Kentucky Heritage Council shall be contacted. The telephone number is (502) 564-7005. Construction shall commence at this location until a written release is received from the Kentucky Heritage Council. Failure to report a find could result in legal action.
- (i) This procurement will be subject to DOW Procurement Guidance including the Davis-Bacon Act.
- (j) Reasonable care shall be taken during construction to avoid damage to vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees which receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing.
- (k) No wastewater bypassing will occur during construction unless a schedule has been approved by the Kentucky Division of Water.
- (l) Change orders to the construction contract (if required) must be negotiated pursuant to DOW/KIA Procurement Guidance for Construction and Equipment Contracts.

KRS CHAPTER 45A
KENTUCKY MODEL PROCUREMENT CODE

45A.075 Methods of awarding state contracts.

Except as otherwise authorized by law, all state contracts shall be awarded by:

- (1) Competitive sealed bidding, pursuant to KRS 45A.080; or
- (2) Competitive negotiation, pursuant to KRS 45A.085 and 45A.090 or 45A.180; or
- (3) Noncompetitive negotiation, pursuant to KRS 45A.095; or
- (4) Small purchase procedures, pursuant to KRS 45A.100.

Effective: June 24, 2003

History: Amended 2003 Ky. Acts ch. 98, sec. 4, effective June 24, 2003. -- Created 1978 Ky. Acts ch. 110, sec. 16, effective January 1, 1979.

45A.080 Competitive sealed bidding.

(1) Contracts exceeding the amount provided by KRS 45A.100 shall be awarded by competitive sealed bidding, which may include the use of a reverse auction, unless it is determined in writing that this method is not practicable. Factors to be considered in determining whether competitive sealed bidding is not practicable shall include:

- (a) Whether specifications can be prepared that permit award on the basis of best value; and
- (b) The available sources, the time and place of performance, and other relevant circumstances as are appropriate for the use of competitive sealed bidding.

(2) The invitation for bids shall state that awards shall be made on the basis of best value. In any contract which is awarded under an invitation to bid which requires delivery by a specified date and imposes a penalty for late delivery, if the delivery is late, the contractor shall be given the opportunity to present evidence that the cause of the delay was beyond his control. If it is the opinion of the purchasing officer that there is sufficient justification for delayed delivery, the purchasing officer may adjust or waive any penalty that is provided for in the contract.

(3) Adequate public notice of the invitation for bids and any reverse auction shall be given a sufficient time prior to the date set forth for the opening of bids or beginning of the reverse auction. The notice may include posting on the Internet or publication in a newspaper or newspapers of general circulation in the state as determined by the secretary of the Finance and Administration Cabinet not less than seven (7) days before the date set for the opening of the bids and any reverse auction. The provisions of this subsection shall also apply to price contracts and purchase contracts of state institutions of higher education.

(4) Bids shall be opened publicly or entered through a reverse auction at the time and place designated in the invitation for bids. At the time the bids are opened, or the reverse auction has ended, the purchasing agency shall announce the agency's engineer's estimate, if applicable, and make it a part of the agency records pertaining to the letting of any contract for which bids were received. Each written or reverse auction bid, together with the name of the bidder and the agency's engineer's estimate, shall be recorded and be open to public inspection. Electronic bid opening and posting of the required information for public viewing shall satisfy the requirements of this subsection.

(5) The contract shall be awarded by written notice to the responsive and responsible bidder whose bid offers the best value.

(6) Correction or withdrawal of written or reverse auction bids shall be allowed only to the extent permitted by regulations issued by the secretary.

Effective: July 15, 2010

History: Amended 2010 Ky. Acts ch. 63, sec. 3, effective July 15, 2010. -- Amended 2000 Ky. Acts ch. 509, sec. 1, effective July 14, 2000. -- Amended 1998 Ky. Acts ch. 120, sec. 10, effective July 15, 1998. -- Amended 1997 (1st Extra. Sess.) Ky. Acts ch. 4, sec. 27, effective May 30, 1997. -- Amended 1996 Ky. Acts ch. 60, sec. 2, effective July 15, 1996. -- Amended 1994 Ky. Acts ch. 278, sec. 1, effective July 15, 1994. -- Amended 1982 Ky. Acts ch. 282, sec. 1, effective July 15, 1982. -- Amended 1979 (1st Extra. Sess.) Ky. Acts ch. 9, sec. 1, effective February 10, 1979. -- Created 1978 Ky. Acts ch. 110, sec. 17, effective January 1, 1979.

45A.085 Competitive negotiation.

(1) When, under administrative regulations promulgated by the secretary or under KRS 45A.180, the purchasing officer determines in writing that the use of competitive sealed bidding is not practicable, and except as provided in KRS 45A.095 and 45A.100, a contract may be awarded by competitive negotiation, which may include the use of a reverse auction.

(2) Adequate public notice of the request for proposals and any reverse auction shall be given in the same manner and circumstances as provided in KRS 45A.080(3).

(3) Contracts other than contracts for projects utilizing an alternative project delivery method under KRS 45A.180 may be competitively negotiated when it is determined in writing by the purchasing officer that the bids received by competitive sealed bidding either are unreasonable as to all or part of the requirements, or were not independently reached in open competition, and for which each competitive bidder has been notified of the intention to negotiate and is given reasonable opportunity to negotiate.

(4) Contracts for projects utilizing an alternative project delivery method shall be processed in accordance with KRS 45A.180.

(5) The request for proposals shall indicate the relative importance of price and other evaluation factors, and any reverse auction procedures.

(6) Award shall be made to the responsible and responsive offeror whose proposal is determined in writing to be the most advantageous to the Commonwealth, taking into consideration price and the evaluation factors set forth in the request for proposals and the reciprocal preference for resident bidders required under KRS 45A.494.

(7) Written or oral discussions shall be conducted with all responsible offerors who submit proposals determined in writing to be reasonably susceptible of being selected for award. Discussions shall not disclose any information derived from proposals submitted by competing offerors. Discussions need not be conducted:

(a) With respect to prices, where the prices are fixed by law, reverse auction, or administrative regulation, except that consideration shall be given to competitive terms and conditions;

(b) Where time of delivery or performance will not permit discussions; or

(c) Where it can be clearly demonstrated and documented from the existence of adequate competition or prior experience with the particular supply, service, or construction item, that acceptance of an initial offer without discussion would result in fair and reasonable best value procurement, and the request for proposals notifies all offerors of the possibility that award may be made on the basis of the initial offers.

Effective: July 15, 2010

History: Amended 2010 Ky. Acts ch. 63, sec. 4, effective July 15, 2010; and ch. 162, sec. 8, effective July 15, 2010. -- Amended 2003 Ky. Acts ch. 98, sec. 5, effective June 24, 2003. -- Amended 1997 (1st Extra. Sess.) Ky. Acts ch. 4, sec. 28, effective May 30, 1997. -- Amended 1979 (1st Extra. Sess.) Ky. Acts ch. 9, sec. 2, effective February 10, 1979. -- Created 1978 Ky. Acts ch. 110, sec. 18, effective January 1, 1979.

45A.090 Negotiation after competitive sealed bidding when all bids exceed available funds.

(1) In the event that all bids submitted pursuant to competitive sealed bidding under KRS 45A.080 result in bid prices in excess of the funds available for the purchase, and the chief purchasing officer determines in writing:

(a) That there are no additional funds available from any source so as to permit an award to the responsive and responsible bidder whose bid offers the best value; and

(b) The best interest of the state will not permit the delay attendant to a resolicitation under revised specifications, or for revised quantities, under competitive sealed bidding as provided in KRS 45A.080, then a negotiated award may be made as set forth in subsections (2) or (3) of this section.

(2) Where there is more than one (1) bidder, competitive negotiations pursuant to KRS 45A.085(3) shall be conducted with the three (3) (two (2) if there are only two (2)) bidders determined in writing to be the most responsive and responsible bidders, based on criteria contained in the bid invitation and the reciprocal preference for resident bidders under KRS 45A.494. Such competitive negotiations shall be conducted under the following restrictions:

(a) If discussions pertaining to the revision of the specifications or quantities are held with any potential offeror, all other potential offerors shall be afforded an opportunity to take part in such discussions; and

(b) A request for proposals, based upon revised specifications or quantities, shall be issued as promptly as possible, shall provide for an expeditious response to the revised requirements, and shall be awarded upon the basis of best value.

(3) Where, after competitive sealed bidding, it is determined in writing that there is only one (1) responsive and responsible bidder, a noncompetitive negotiated award may be made with such bidder in accordance with KRS 45A.095.

Effective: July 15, 2010

History: Amended 2010 Ky. Acts ch. 162, sec. 9, effective July 15, 2010. -- Amended 2003 Ky. Acts ch. 98, sec. 6, effective June 24, 2003. -- Amended 1997 (1st Extra. Sess.) Ky. Acts ch. 4, sec. 29, effective May 30, 1997. -- Created 1978 Ky. Acts ch. 110, sec. 19, effective January 1, 1979.

45A.095 Noncompetitive negotiation.

(1) A contract may be made by noncompetitive negotiation only for sole source purchases, or when competition is not feasible, as determined by the purchasing officer in writing prior to award, under administrative regulations promulgated by the secretary of the Finance and Administration Cabinet or the governing boards of universities operating under KRS Chapter 164A, or when emergency conditions exist. Sole source is a situation in which there is only one (1) known capable supplier of a commodity or service, occasioned by the unique nature of the requirement, the supplier, or market conditions. Insofar as it is practical, no less than three (3) suppliers shall be solicited to submit written or oral quotations whenever it is determined that competitive sealed bidding is not feasible. Award shall be made to the supplier offering the best value. The names of the suppliers submitting quotations and the date and amount of each quotation shall be placed in the procurement file and maintained as a public record.

Competitive bids may not be required:

(a) For contractual services where no competition exists, such as telephone service, electrical energy, and other public utility services;

(b) Where rates are fixed by law or ordinance;

(c) For library books;

(d) For commercial items that are purchased for resale;

(e) For interests in real property;

(f) For visiting speakers, professors, expert witnesses, and performing artists;

(g) For personal service contracts executed pursuant to KRS 45A.690 to 45A.725; and

(h) For agricultural products in accordance with KRS 45A.645.

(2) The chief procurement officer, the head of a using agency, or a person authorized in writing as the designee of either officer may make or authorize others to make emergency procurements when an emergency condition exists.

(3) An emergency condition is a situation which creates a threat or impending threat to public health, welfare, or safety such as may arise by reason of fires, floods, tornadoes, other natural or man-caused disasters, epidemics, riots, enemy attack, sabotage, explosion, power failure, energy shortages, transportation emergencies, equipment failures, state or federal legislative mandates, or similar events. The existence of the emergency condition creates an immediate and serious need for services, construction, or items of tangible personal property that cannot be met through normal procurement methods and the lack of which would seriously threaten the functioning of government, the preservation or protection of property, or the health or safety of any person.

(4) The Finance and Administration Cabinet may negotiate directly for the purchase of contractual services, supplies, materials, or equipment in bona fide emergencies regardless of estimated costs. The existence of the emergency shall be fully explained, in writing, by the head of the agency for which the purchase is to be made. The explanation shall be approved by the secretary of the Finance and Administration Cabinet and shall include the name of the vendor receiving the contract along with any other price quotations and a written determination for selection of the vendor receiving the contract. This information shall be filed with the record of all such purchases and made available to the public. Where practical, standard specifications shall be followed in making emergency purchases. In any event, every effort should be made to effect a competitively established price for purchases made by the state.

Effective: July 15, 2002

History: Amended 2002 Ky. Acts ch. 344, sec. 9, effective July 15, 2002. -- Amended 1997 (1st Extra. Sess.) Ky. Acts ch. 4, sec. 30, effective May 30, 1997. -- Amended 1990 Ky. Acts ch. 496, sec. 4, effective July 13, 1990. -- Created 1978 Ky. Acts ch. 110, sec. 20, effective January 1, 1979

45A.100 Small purchases by state governmental bodies.

(1) Procurements may be made in accordance with small purchase administrative regulations promulgated by the secretary of the Finance and Administration Cabinet, pursuant to KRS Chapter 13A, as follows:

(a) Up to ten thousand dollars (\$10,000) per project for construction and one thousand dollars (\$1,000) for purchases by any state governmental body, except for those state administrative bodies specified in paragraph (b) of this subsection; and

(b) Up to forty thousand dollars (\$40,000) per project for construction or purchases by the Finance and Administration Cabinet, state institutions of higher education, and the legislative branch of government.

(2) Procurement requirements shall not be artificially divided so as to constitute a small purchase under this section. Reverse auctions may be used for small purchase procurements. At least every two (2) years, the secretary shall review the prevailing costs of labor and materials and may make recommendations to the next regular session of the General Assembly for the revision of the then current maximum small purchase amount as justified by intervening changes in the cost of labor and materials.

(3) The secretary of the Finance and Administration Cabinet may grant to any state agency with a justifiable need a delegation of small purchasing authority which exceeds the agency's small purchase limit provided in subsection (1) of this section. Delegations of small purchasing authority shall be granted or revoked by the secretary of the Finance and Administration Cabinet, in accordance with administrative regulations promulgated by the cabinet pursuant to KRS Chapter 13A. These administrative regulations shall establish, at a minimum, the criteria for granting and revoking delegations of small purchasing authority, including the requesting agency's past compliance with purchasing regulations, the level of training of the agency's purchasing staff, and the extent to which the agency utilizes the Kentucky Automated Purchasing System. The administrative regulations may permit the secretary of the Finance and Administration Cabinet to delegate small purchase procurements up to the maximum amount specified in subsection (1)(b) of this section.

Effective: July 15, 2010

History: Amended 2010 Ky. Acts ch. 63, sec. 5, effective July 15, 2010. -- Amended 2002 Ky. Acts ch. 320, sec. 2, effective July 15, 2002. -- Amended 2000 Ky. Acts ch. 225, sec. 1, effective July 14, 2000. -- Amended 1996 Ky. Acts ch. 60, sec. 1, effective July 15, 1996. -- Amended 1994 Ky. Acts ch. 323, sec. 1, effective July 15, 1994. -- Amended 1990 Ky. Acts ch. 496, sec. 5, effective July 13, 1990. -- Amended 1986 Ky. Acts ch. 384, sec. 1, effective July 15, 1986. -- Amended 1984 Ky. Acts ch. 384, sec. 1, effective July 13, 1984. -- Amended 1982 Ky. Acts ch. 282, sec. 2, effective July 15, 1982. -- Amended 1980 Ky. Acts ch. 242, sec. 1, effective July 15, 1980; and ch. 250, sec. 19, effective April 9, 1980. -- Created 1978 Ky. Acts ch. 110, sec. 21, effective January 1, 1979.

**NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO
ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)**

The following excerpts are from 45 FR 65984 (October 3, 1980):

The minority and female goals apply to Federal and federally assisted construction contractors and subcontractors which have covered contracts. The goals are expressed as a percentage of the total hours worked by such a covered or subcontractor's entire onsite construction workforce, which is working on any construction site within a relevant area. The goal applies to each construction craft and trade in the contractor's entire workforce in the relevant area including those employees working on private non-federally involved projects.

Until further notice, the following goals for minority utilization in each construction craft and trade shall be included in all Federal or federally assisted construction contracts and subcontracts in excess of \$10,000 to be performed in the respective geographic area. The goals are applicable to each nonexempt contractor's total onsite construction workforce, regardless of whether or not part of that workforce is performing work on a Federal, federally assisted or non-federally related project, contract or subcontract.

Construction contractors which are participating in an approved Hometown Plan (see 41 CFR 60-4.5) are required to comply with the goals of the Hometown Plan with regard to construction work they perform in the area covered by the Hometown Plan. With regard to all their other covered construction work, such contractors are required to comply as follows:

- Goals for female participation in each trade.....6.9%
- Goals for minority participation in each trade.....Insert goals for each year
(see Attachment Number 5)

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or Federally assisted) performed in the covered area.

The following excerpts are from 45 FR 65977 (October 3, 1980):

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

As used in this Notice, and in the contract resulting from this solicitation, the covered area is (insert description of the geographical areas where the contract is to be performed giving the state, country, and city, if any).

**STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY
CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)**

EEO Specifications

Following is the standard language, which must be incorporated into all solicitations for offers and bids on all Federal and Federally assisted construction contracts or subcontracts in excess of \$10,000 to be performed in designated geographical areas:

1. As used in these specifications:
 - (a) Covered Area means the geographical area described in the solicitation from which this contract resulted.
 - (b) Director means Director, Office of Federal Contract Compliance Program, United States Department of Labor, or any person to whom the Director delegates authority;
 - (c) Employer identification number means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
 - (d) Minority includes:
 - (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. Whenever the Contractor or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take a good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7-a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.
5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.
7. The Contractor shall take specific affirmative action to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensively as the following:
 - a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
 - b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations responses.
 - c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the contractor may have taken.
 - d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligation.
 - e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources complied under 7-b above.

- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
- g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, lay-off, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foreman, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.
- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
- l. Conduct, at least annually, an inventory and evaluation of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
- m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that EEO policy and the Contractor's obligations under these specifications are being carried out.
- n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
- o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations, which assist in fulfilling one or more of their affirmative actions obligations (7 a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant may be asserted as fulfilling any one or more of its obligations under 7 a through p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be defense for the Contractor's noncompliance.
9. A single goal for minorities and a separate single goal for women have been established. The contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example: even though the Contractor has achieved its goal for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).
10. The Contractor shall not use the goals and timetables for affirmative action standards to discriminate against any person because of race, color, religion, sex or national origin.
11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and executive Order 11246, as amended.
13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.
14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

**EEO GOALS FOR ECONOMIC AREAS IN REGION 4
SOURCE: APPENDIX B-80 IN 45 FR 65984 (OCTOBER 3, 1980)**

Kentucky:

053 Knoxville, TN	
SMSA Counties:	
3840 Knoxville, TN.....	6.6
TN Anderson; TN Blount; TN Knox; TN Union.	
Non-SMSA Counties	4.5
KY Bell; KY Harlan; KY Knox; KY Laurel; KY McCreary; KY Wayne; KY	
Whitley; TN Campbell; TN Claiborne; TN Cocke; TN Cumberland; TN Fentress;	
TN Grainger, TN Hamblen; TN Jefferson; TN Loudon; TN Morgan; TN Roane;	
TN Scott; TN Sevier.	
054 Nashville, TN:	
SMSA Counties:	
1660 Clarksville - Hopkinsville, TN - KY	18.2
KY Christian; TN Montgomery.	
5360 Nashville - Davidson, TN.....	15.8
TN Cheatham, TN Davidson; TN Dickson; TN Robertson; TN Rutherford; TN	
Sumner; TN Williamson; TN Wilson.	
Non-SMSA Counties	12.0
KY Allen; KY Barren; KY Butler; KY Clinton; KY Cumberland; KY Edmonson;	
KY Logan; KY Metcalfe; KY Monroe; KY Simpson; KY Todd; KY Trigg; KY	
Warren; TN Bedford; TN Cannon; TN Clay; TN Coffee; TN DeKalb; TN Franklin;	
TN Giles; TN Hickman; TN Houston; TN Humphreys; TN Jackson; TN Lawrence;	
TN Lewis; TN Macon; TN Marshall; TN Maury; TN Moore; TN Overton; TN	
Perry; TN Pickett; TN Putnam; TN Smith; TN Stewart; TN Trousdale; TN Van	
Buren; TN Warren; TN Wayne; TN White.	
056 Paducah, KY:	
Non-SMSA Counties	5.2
IL Hardin; IL Massac; IL Pope; KY Ballard; KY Caldwell; KY Calloway. KY	
Carlisle; KY Crittenden; KY Fulton; KY Graves; KY Hickman; KY Livingston;	
KY Lyon. KY McCracken; KY Marshall.	
057 Louisville, KY:	
SMSA Counties:	
4520 Louisville, KY-IN	11.2
IN Clark; IN Floyd; KY Bullitt; KY Jefferson; KY Oldham.	
Non-SMSA Counties	9.6
IN Crawford; IN Harrison; IN Jefferson; IN Orange; IN Scott; IN Washington; KY	
Breckinridge; KY Grayson; KY Hardin; KY Hart; KY Henry; KY Larue; KY	
Marion; KY Meade; KY Nelson; KY Shelby; KY Spencer; KY Trimble; KY	
Washington.	

058 Lexington, KY	
SMSA Counties	
4280 Lexington-Fayette, KY	10.8
KY Bourbon; KY Clark; KY Fayette; KY Jessamine; KY Scott; KY Woodford.	
Non-SMSA Counties	7.0
KY Adair KY Anderson; KY Bath; KY Boyle; KY Breathitt; KY Casey; KY Clay;	
KY Estill; KY Franklin; KY Garrard; KY Green; KY Harrison; KY Jackson; KY	
Knott; KY Lee; KY Leslie; KY Letcher; KY Lincoln; KY Madison; KY Magoffin;	
KY Menifee; KY Mercer; KY Montgomery; KY Morgan. KY Nicholas; KY	
Owsley; KY Perry; KY Powell; KY Pulaski; KY Rockcastle; KY Russell; KY	
Taylor; KY Wolfe.	
059 Huntington, WV:	
SMSA Counties:	
3400 Huntington - Ashland, WV-KY-OH	2.9
KY Boyd; KY Greenup; OH Lawrence; WV Cabell; WV Wayne.	
Non-SMSA Counties	2.5
KY Carter; KY Elliott; KY Floyd; KY Johnson; KY Lawrence; KY Martin; KY	
Pike; KY Rowan; OH Gallia; WV Lincoln; WV Logan; WV Mason; WV Mingo.	
067 Cincinnati, OH:	
SMSA Counties:	
1640 Cincinnati, OH-KY-IN	11.0
IN Dearborn; KY Boone; KY Campbell; KY Kenton; OH Clermont; OH Hamilton;	
OH Warren.	
3200 Hamilton - Middletown, OH	5.0
OH Butler.	
Non-SMSA Counties	9.2
IN Franklin; IN Ohio; IN Ripley; IN Switzerland; KY Bracken; KY Carroll; KY	
Fleming; KY Gallatin; KY Grant; KY Lewis; KY Mason; KY Owen; KY	
Pendleton; KY Robertson; OH Adams; OH Brown; OH Clinton; OH Highland.	
080 Evansville, IN:	
SMSA Counties	
2440 Evansville, IN-KY	4.8
IN Gibson; IN Posey; IN Vanderburgh; IN Warrick; KY Henderson.	
5990 Owensboro, KY	4.7
KY Daviess.	
Non-SMSA Counties	3.5
IL Edwards; IL Gallatin; IL Hamilton; IL Lawrence; IL Saline; IL Wabash; IL	
White; IN Dubois; IN Knox; IN Perry; IN Pike; IN Spencer; KY Hancock; KY	
Hopkins; KY McLean; KY Muhlenberg; KY Ohio; KY Union; KY Webster.	

**CHECK LIST OF EEO DOCUMENTATION FOR BIDDERS ON
GRANT/LOAN CONSTRUCTION (EXECUTIVE ORDER 11246 AS AMENDED)**

The low, responsive responsible bidder must forward the following items, in duplicate, to the owner no later than ten (10) days after bid opening. The owner shall have one (1) copy available for inspection by the Office of Federal Contracts Compliance (OFCC) within 14 days after the bid opening. More information can be found on the [OFCC](#) webpage.

1. Project Number. Project Location. Type of Construction.
2. Proof of registration with the Joint Reporting Commission. (See Attachment Number 7.)
3. Copy of Affirmative Action Plan of contractor. Indicate company official responsible for EEO.
4. List of current construction contracts, with dollar amount. List contracting Federal Agency, if applicable.
5. Statistics concerning company percent workforce, permanent and temporary, by sex, race, trade, handicapped, and age. 40 CFR Part 7.
6. List of employment sources for project in question. If union sources are utilized, indicate percentage of minority membership within the union crafts.
7. Anticipated employment needs for this project, by sex, race and trade, with estimate of minority participation in specific trades.
8. List of subcontractors (name, address and telephone) with dollar amount and duration of subcontract. Subcontractor contracts over \$10,000 must submit items 1- 7. The following information must be provided for all supplier contracts regardless of contract size: name of company, contact person, address, telephone number, dollar value of the contract, and a list of the materials to be supplied to the prime contractor.
9. List of any subcontract work yet to be committed with estimate of dollar amount and duration of contract.
10. Contract Price. Duration of prime contract.
11. DBE Documents - See special instructions regarding use of Minority, and Women Owned, and Small Businesses.

EMPLOYER INFORMATION REPORT EEO-1

Under the direction of the US Equal Employment Opportunity Commission, the Joint Reporting Committee is responsible for the full-length, multi-phase processing of employment statistics collected on the Employer Information Report EEO-1. This report, also termed Standard Form 100, details the sex and race/ethnic composition of an employer's work force by job category.

The Employer Information EEO-1 survey is conducted annually under the authority of Public Law 88-352, Title VII of the Civil Rights Act of 1964, as amended by the Equal Employment Opportunity Act of 1972. All employers with 15 or more employees are covered by Public Law 88-352 and are required to keep employment records as specified by Commission regulations. Based on the number of employees and federal contract activities, certain large employers are required to file an EEO-1 Report on an annual basis.

The EEO-1 Report must be filed by:

- (A) All private employers who are: (1) subject to Title VII of the Civil Rights Act of 1964 (as amended by the Equal Employment Opportunity Act of 1972) with 100 or more employees EXCLUDING State and local governments, primary and secondary school systems, institutions of higher education, Indian tribes and tax-exempt private memberships clubs other than labor organizations; OR (2) subject to Title VII who have fewer than 100 employees if the company is owned or affiliated with another company, or there is centralized ownership, control or management (such as central control of personnel policies and labor relations) so that the group legally constitutes a single enterprise and the entire enterprise employs a total of 100 or more employees.
- (B) All federal contractors (private employers), who: (1) are not exempt as provided for by 41 CFR 60-1.5, (2) have 50 or more employees, and (a) are prime contractors or first-tier subcontractors, and have a contract, subcontract, or purchase order amounting to \$50,000 or more; or (b) serve as depository of Government funds in any amount, or (c) is a financial institution which is an issuing an paying agent for U.S. Savings Bonds and Notes.

Only those establishments located in the District of Columbia and the 50 states are required to submit the EEO-1 Report. No Reports should be filed for establishments in Puerto Rico, the Virgin Islands or other American Protectorates.

When filing for the EEO-1 Report for the first time, go to the [U.S. Equal Employment Opportunity Commission](#) webpage and select "First Time Filers". Fill out the electronic questionnaire to enter your company into Joint Reporting Committee (JRC) system. Once you have completed the registration process, you will be contacted on how to proceed with the EEO-1 Report. If you have previously registered with the JRC, follow their instructions to update your information.

**LABOR STANDARDS PROVISIONS FOR
FEDERALLY ASSISTED CONSTRUCTION**

Labor standards provisions applicable to contracts covering federally financed and assisted construction (29 CFR 5.5, Contract Provisions and Related Matters) that apply to EPA State Revolving Fund loans are:

(a)(4)(iii) *Equal employment opportunity.* The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

(a)(5) *Compliance with Copeland Act requirements.* The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

(a)(6) *Subcontracts.* The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5 (a)(1) through (10) and such other clauses as the U.S. Environmental Protection Agency may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(a)(7) *Contract termination: debarment.* A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(b) *Contractor Work Hours and Safety Standards Act.* The Administrator, EPA, shall cause or require the contracting officer to insert the following clauses set forth in paragraphs (b)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by §5.5(a) or §4.6 of part 4 of this title. As used in this paragraph, the terms *laborers* and *mechanics* include watchmen and guards.

(b)(1) *Overtime requirements.* No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(b)(2) *Violation; liability for unpaid wages; liquidated damages.* In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for unliquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of \$27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) *Withholding for unpaid wages and liquidated damages.* The U.S. Environmental Protection Agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime

contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) *Subcontracts.* The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

(c) In addition to the clauses contained in paragraph (b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in section §5.1, the Administrator of EPA shall cause or require the contracting officer to insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Administrator of EPA shall cause or require the contracting officer to insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the U.S. Environmental Protection Agency and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job. (Approved by the Office of Management and Budget under OMB control numbers 1215-0140 and 1215-0017.)

CERTIFICATIONS

Debarred Firms

All prime Construction Contractors shall certify that Subcontractors have not and will not be awarded to any firm that is currently on the EPA Master List of Debarred, Suspended and Voluntarily Excluded Persons in accordance with the provisions of 40 CFR 32.500(c). Debarment action is taken against a firm for noncompliance with Federal Law.

All bidders shall complete the attached certification (Attachment Number 9) and submit to the owner with the bid proposal.

Anti-lobbying Certification

All prime Construction Contractors must certify (Attachment Number 10) that no appropriated funds were or will be expended for the purpose of lobbying the Executive or Legislative Branches of the Federal Government or Federal Agency concerning this contract (contract in excess of \$100,000). If the Contractor has made or agreed to make payment to influence any member of Congress in regard to award of this contract, a Disclosure Form must be completed and submitted to the owner with the bid proposal.

All prime Contractors must require all Subcontractors to submit the certification, which must also be submitted to the owner.

**CERTIFICATION REGARDING DEBARMENT,
SUSPENSION AND OTHER RESPONSIBILITY MATTERS**

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- (b) Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- (c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or Local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
- (d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to \$10,000 or imprisonment for up to 5 years, or both.

Typed Name & Title of Authorized Representative

Signature of Authorized Representative

Date

_____ I am unable to certify to the above statements. My explanation is attached.

**CERTIFICATION REGARDING LOBBYING
CERTIFICATION FOR CONTRACTS,
GRANTS, LOANS, AND COOPERATIVE AGREEMENTS**

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Typed Name & Title of Authorized Representative

Signature of Authorized Representative

Date

_____ I am unable to certify to the above statements. My explanation is attached.

EPA DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

EPA's Disadvantaged Business Enterprise Program rule applies to contract procurement actions funded in part by EPA assistance agreements awarded after May 27, 2008. The rule is found at Federal regulation Title 40, Part 33. Specific responsibilities are highlighted below.

Loan recipient responsibilities:

- Include in each contract with a primary contractor the following term and condition:

“The contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contractor shall carry out applicable requirements of 40 CFR part 33 in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract.” (*Appendix A to Part 33—Term and Condition*)
- Employ the six Good Faith Efforts during prime contractor procurement (§33.301).
- Require the prime contractor to comply with the following prime contractor requirements of Title 40 Part 33:
 - To pay its subcontractor for satisfactory performance no more than 30 days from the prime contractor's receipt of payment from the recipient (§33.302(a)).
 - To notify recipient in writing prior to any termination of a DBE subcontractor for convenience by the prime contractor (§33.302(b)).
 - To employ the six Good Faith Efforts described in §33.301 if soliciting a replacement subcontractor after a DBE subcontractor fails to complete work under the subcontract for any reason (§33.302(c)).
 - To employ the six Good Faith Efforts described in §33.301 even if the prime contractor has achieved its fair share objectives under subpart D of Part 33 (§33.302(d)).
 - To provide EPA Form 6100-2 – *DBE Program Subcontractor Participation Form* to all DBE subcontractors (§33.302(e)). **NOTE: this requirement has been suspended.**
 - To submit EPA Forms 6100-3 – *DBE Program Subcontractor Performance Form* and 6100-4 *DBE Program Subcontractor Utilization Form* as part of the bid package or proposal (§33.302(f) and (g)). **NOTE: this requirement has been suspended.**
 - To employ the six Good Faith Efforts steps in paragraphs (a) through (f) of §33.301 while procuring any subcontracts (§33.302(i)).
- Conduct an Availability Analysis and negotiate fair share objectives with EPA (§33.401), or adopt the fair share objectives of the oversight state agency revolving loan fund for comparable infrastructure (§33.405(b)(3)).
- Maintain all records documenting its compliance with the requirements of Title 40 Part 33, including documentation of its, and its prime contractors', good faith efforts (§33.501(a)).

- Create and maintain a bidders list and require the prime contractor to create and maintain a bidders list (§33.501(b)). This list must include all firms that bid or quote on prime contracts, or bid or quote subcontracts, including both MBE/WBEs and non-MBE/WBEs. This list must be kept until the project period for the identified loan has ended. The following information must be obtained from all prime and subcontractors:
 - (a) Entity's name with point of contact,
 - (b) Entity's mailing address, telephone number, and email address,
 - (c) The procurement on which the entity bid or quoted, and when, and,
 - (d) Entity's status as an MBE/WBE or non-MBE/WBE.

Prime Contractor Responsibilities:

- Include in each contract with a subcontractor the following term and condition:

“The contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contractor shall carry out applicable requirements of 40 CFR part 33 in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract.” (*Appendix A to Part 33—Term and Condition*)
- Employ the six Good Faith Efforts during subcontractor procurement (§33.301).
- Pay subcontractors for satisfactory performance no more than 30 days from receipt of payment from the recipient (§33.302(a)).
- Notify recipient in writing prior to termination of a DBE subcontractor for convenience (§33.302(b)).
- Employ the six Good Faith Efforts described in §33.301 if soliciting a replacement subcontractor after a DBE subcontractor fails to complete work under the subcontract for any reason. (§33.302(c)).
- Employ the six Good Faith Efforts described in §33.301 even if the fair share objectives have been achieved under subpart D of Part 33 (§33.302(d)).
- Provide EPA Forms 6100-2 – *DBE Program Subcontractor Participation Form* and 6100-3 – *DBE Program Subcontractor Performance Form* to each DBE subcontractor prior to opening of the subcontractor's bid or proposal (§33.302(e) and (f)). **NOTE: this requirement has been suspended.**
- Complete EPA Form 6100-4 – *DBE Program Subcontractor Utilization Form* (§33.302(g)). **NOTE: this requirement has been suspended.**
- Submit to recipient with the bid package or proposal the completed EPA Form 6100-4, plus an EPA Form 6100-3 for each DBE subcontractor used in the bid or proposal (§33.302(f) and (g)). **NOTE: this requirement has been suspended.**
- Maintain all records documenting its compliance with the requirements of Title 40 Part 33, including documentation of its, and its subcontractors', good faith efforts (§33.501(a)).
- Create and maintain a bidders list and require the subcontractor to create and maintain a bidders list (§33.501(b)). This list must include all firms that bid or quote on subcontracts, including both

MBE/WBEs and non-MBE/WBEs. This list must be kept until the project period for the identified loan has ended. The following information must be obtained from all subcontractors:

- (a) Entity's name with point of contact,
- (b) Entity's mailing address, telephone number, and email address,
- (c) The procurement on which the entity bid or quoted, and when, and,
- (d) Entity's status as an MBE/WBE or non-MBE/WBE.

Subcontractor Responsibilities:

- May submit EPA Form 6100-2 – *DBE Program Subcontractor Participation Form* directly to DOW Project Manager (§33.302(e)). **NOTE: this requirement has been suspended.**
- Must complete EPA Form 6100-3 – *DBE Program Subcontractor Performance Form* and submit it to the prime contractor soliciting services prior to the prime contractor opening bids or quotes. **NOTE: this requirement has been suspended.**

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION POLICY

PROJECT NAME: _____ BID DATE: _____

1. Name, address and telephone number of contact person on all DBE matters:

Prime Contractor's Name: _____
Contact Person: _____
Address: _____
Phone: _____
Cell Phone: _____
Email: _____
Total Contract Amount: _____

2. Total dollar amount/percent of contract of MBE participation: _____

3. Total dollar amount/percent of contract of WBE participation: _____

4. Are certifications* for each MBE/WBE/DBE subcontractor enclosed; if no, please explain: Yes No _____

5. Are MBE/WBE/DBE subcontracts or letters of intent signed by both parties enclosed; if no, please explain: Yes No _____

6. List of MBE Subcontractors:

Name: _____
Contact Person: _____
Address: _____
Phone: _____
Cell Phone: _____
Email: _____
Type of Contract: _____
Work to be Done: _____
Amount: _____

7. List of WBE Subcontractors:

Name: _____
Contact Person: _____
Address: _____
Phone: _____
Cell Phone: _____
Email: _____
Type of Contract: _____
Work to be Done: _____
Amount: _____

Attach Additional Sheets, If Necessary

*Self-certification: Self certification of MBE/WBE/DBE firms will NOT be accepted as a valid form of certification of MBE/WBE/DBE status.

8. Information and documentation concerning efforts taken to comply with EPA’s “six good faith efforts”

(i). Ensure DBE construction firms or material suppliers are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities; including placing DBEs on solicitation lists and soliciting them whenever they are potential sources. A good source for a list of DBEs is the Kentucky Transportation’s [Certified DBE Directory](#) webpage.

The prime contractor certifies that a solicitation list of qualified DBE vendors was developed for current and future solicitations. *Submit a copy of the list as documentation.*

(ii). Make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process; including, whenever possible, posting solicitation for bids or proposals for a sufficient amount of time as to receive a competitive bid or proposal pool.

The prime contractor certifies that every opportunity was provided to a number of DBEs to encourage their participation in the competitive process and that an adequate amount of time was provided for response. Must do at least one of the below.

a. List each DBE construction firm or material supplier to which a solicitation was attempted. *Submit copies of letters, emails, faxes, telecommunication logs, certified mail receipts, returned envelopes, certified mail return receipts, etc. as documentation.*

Company name and phone number: _____

Area of work expertise: _____

Date of any follow-ups and person spoke to: _____

b. Advertisements, if applicable: List each publication in which an announcement or notification was placed. *Submit original advertisement or a copy of the advertisement with an affidavit of publication for each announcement as documentation.*

Name of publication: _____

Date(s) of advertisement: _____

Specific subcontract areas announced: _____

c. Other, if applicable: List each notification method in which an announcement or outreach was used; list serve, public meeting, etc. *Submit applicable information to document effort.*

Method of notification: _____

Date(s) of notification: _____

(iii). Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs; including dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.

The prime contractor certifies that the project was broken into its basic elements (i.e., dirt hauling, landscaping, painting, pipe installation, material supplies, etc.) and that a determination was made whether it’s economically feasible to bid the elements separately and that the analysis of this effort was documented with a short memo to the project file.

- (iv). Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority business, and women’s business enterprises.
 - The prime contractor certifies that they established delivery schedules which would allow DBEs to participate in the project and the effort was documented with a short memo to the project file.

- (v). Use the services and assistance of the Small Business Administration (SBA). The easiest way to utilize their services is to visit the [SBA](#) webpage and use the electronic tools available there or you may send the nearest SBA office a certified letter that generally describes the solicitation, the dates it will be open, the types of vendors you are seeking and applicable Standard Industrial Classification (SIC) or North American Industry Classification System (NAIC) codes if known. Or, you may use the services and assistance of the Kentucky Procurement Technical Assistance Center (PTAC) **and** the Kentucky Department of Transportation (KDOT). The easiest way to utilize the services of Kentucky PTAC and KDOT is to send an email to kyptacinfo@kstc.com and Melvin.Bynes2@ky.gov and generally describe the solicitation, the dates it will be open, the types of vendors you are seeking and applicable SIC or NAIC codes if known.
 - The prime contractor certifies that the assistance of the SBA or PTAC **and** KDOT was utilized. *Submit pages printed off the SBA websites which evidence efforts to register a solicitation on the site or submit copies of the letter sent and certified mail receipt as documentation; or submit copies of emails sent to PTAC and DOT as documentation.*

- (vi). If a Prime contractor awards any subcontracts, require the subcontractor to take the steps in numbers (i) through (v) above.
 - The prime contractor certifies that subcontractors used for this project will be required to follow the steps of the “six good faith efforts” as listed above.

9. Signature and date:

To the best of my knowledge and belief, all “six good faith efforts” have been met and the information contained in this document is true and correct; the document has been duly authorized by the legal representative.

Signature

Print name and title

Date

BIDDER'S LIST FORM

OWNER: _____

LOAN NO.: _____

PROJECT TITLE: _____

BID DATE: _____

Instructions:

1. Per 40 CFR §33.501 (b), this list must include all firms that were solicited for participation, bid on, or quoted for a prime contract or subcontract under EPA assisted projects, includes both DBE's and non DBE's.
2. SRF loan participants must keep the Bidder's List until the project period for the identified loan has ended and no funds are remaining.
3. This list must be submitted to DOW in the ATA Package. Contract Award Approval cannot be given until this form has been received by DOW.
4. The following information must be obtained from all prime and subcontractors. Please complete the form below:

ENTITY'S NAME	MAILING ADDRESS	CONTACT PERSON	PHONE#	E-MAIL ADDRESS	M/WBE?

BONDS AND INSURANCE

The minimum requirements shall be as follows:

Bonding requirements for contracts of \$100,000 or less are contained in 40 CFR 31.36(h).

Bond requirements for contracts in excess of \$100,000 are:

- Bid guarantee equivalent to five percent of the bid price. The bid guarantee shall consist of a firm commitment such as a certified check or bid bond submitted with the bid;
- Performance bond equal to 100 percent of the contract price, and
- Payment bond equal to 100 percent of the contract price. Bonds must be obtained from companies holding Certificates of Authority as acceptable sureties, issued by the U.S. Treasury.

Insurance requirements are contained in the General Conditions of the contract. In addition to the other required insurance, the owner or the contractor, as appropriate, must acquire any flood insurance made available by the Federal Emergency Management Agency as required by 44 CFR Parts 59-79, if construction will take place in a flood hazard area identified by the Federal Emergency Management Agency. The owner's requirements on Flood Insurance are contained in the Special Conditions Section of the Contracts Documents.

STORM WATER GENERAL PERMIT

All construction projects with surface disturbance of more than 1 acre during the period of construction must have a KPDES Storm Water General Permit. The permit can be found at this [webpage](#).

If you have any questions regarding the completion of this form call the Surface Water Permits Branch, at (502) 564-3410.

DAVIS-BACON WAGE RATE REQUIREMENTS

CWSRF: The recipient agrees to include in all agreements to provide assistance for the construction of treatment works carried out in whole or in part with such assistance made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.), or with such assistance made available under section 205(m) of that Act (33 U.S.C. 1285(m)), or both, a term and condition requiring compliance with the requirements of section 513 of that Act (33 U.S.C. 1372) in all procurement contracts and sub-grants, and require that loan recipients, procurement contractors and sub-grantees include such a term and condition in subcontracts and other lower tiered transactions. All contracts and subcontracts for the construction of treatment works carried out in whole or in part with assistance made available as stated herein shall insert in full in any contract in excess of \$2,000 the contract clauses as set forth below titled “Wage Rate Requirements Under The Consolidated and Further Continuing Appropriations Act, 2013 (P.L. 113-6)”. This term and condition applies to all agreements to provide assistance under the authorities referenced herein, whether in the form of a loan, bond purchase, grant, or any other vehicle to provide financing for a project, where such agreements are executed on or after October 30, 2009.

DWSRF: The recipient agrees to include in all agreements to provide assistance for any construction project carried out in whole or in part with such assistance made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12), a term and condition requiring compliance with the requirements of section 1450(e) of the Safe Drinking Water Act (42 U.S.C.300j-9(e)) in all procurement contracts and sub-grants, and require that loan recipients, procurement contractors and sub-grantees include such a term and condition in subcontracts and other lower tiered transactions. All contracts and subcontracts for any construction project carried out in whole or in part with assistance made available as stated herein shall insert in full in any contract in excess of \$2,000 the contract clauses as set forth below entitled “Wage Rate Requirements Under The Consolidated and Further Continuing Appropriations Act, 2013 (P.L. 113-6)”. This term and condition applies to all agreements to provide assistance under the authorities referenced herein, whether in the form of a loan, bond purchase, grant, or any other vehicle to provide financing for a project, where such agreements are executed on or after October 30, 2009.

Wage Rate Requirements under the Consolidated and Further Continuing Appropriations Act, 2013 (P.L. 113-6)

Preamble

With respect to the Clean Water and Safe Drinking Water State Revolving Funds, EPA provides capitalization grants to each State which in turn provides subgrants or loans to eligible entities within the State. Typically, the subrecipients are municipal or other local governmental entities that manage the funds. For these types of recipients, the provisions set forth under Roman Numeral I, below, shall apply. Although EPA and the State remain responsible for ensuring subrecipients’ compliance with the wage rate requirements set forth herein, those subrecipients shall have the primary responsibility to maintain payroll records as described in Section 3(ii)(A), below and for compliance as described in Section I-5.

Occasionally, the subrecipient may be a private for profit or not for profit entity. For these types of recipients, the provisions set forth in Roman Numeral II, below, shall apply. Although EPA and the State remain responsible for ensuring subrecipients’ compliance with the wage rate requirements set forth herein, those subrecipients shall have the primary responsibility to maintain payroll records as described in Section II-3(ii)(A), below and for compliance as described in Section II-5.

I. Requirements under the Consolidated and Further Continuing Appropriations Act, 2013 (P.L. 113-6) for Subrecipients that are Governmental Entities:

The following terms and conditions specify how recipients will assist EPA in meeting its Davis-Bacon (DB) responsibilities when DB applies to EPA awards of financial assistance under the FY 2013 Continuing Resolution with respect to State recipients and subrecipients that are governmental entities. If a subrecipient has questions regarding when DB applies, obtaining the correct DB wage determinations, DB provisions, or compliance monitoring, it may contact the State recipient. The recipient or subrecipient may also obtain additional guidance from [Department of Labor's](#) webpage.

1. Applicability of the Davis- Bacon (DB) prevailing wage requirements.

Under the FY 2013 Continuing Resolution, DB prevailing wage requirements apply to the construction, alteration, and repair of treatment works carried out in whole or in part with assistance made available by a State water pollution control revolving fund and to any construction project carried out in whole or in part by assistance made available by a drinking water treatment revolving loan fund. If a subrecipient encounters a unique situation at a site that presents uncertainties regarding DB applicability, the subrecipient must discuss the situation with the recipient State before authorizing work on that site.

2. Obtaining Wage Determinations.

(a) Subrecipients shall obtain the wage determination for the locality in which a covered activity subject to DB will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DB. These wage determinations shall be incorporated into solicitations and any subsequent contracts. Prime contracts must contain a provision requiring that subcontractors follow the wage determination incorporated into the prime contract.

(i) While the solicitation remains open, the subrecipient shall monitor the [General Services Administration](#) website weekly to ensure that the wage determination contained in the solicitation remains current. The subrecipients shall amend the solicitation if DOL issues a modification more than 10 days prior to the closing date (i.e. bid opening) for the solicitation. If DOL modifies or supersedes the applicable wage determination less than 10 days prior to the closing date, the subrecipients may request a finding from the State recipient that there is not a reasonable time to notify interested contractors of the modification of the wage determination. The State recipient will provide a report of its findings to the subrecipient.

(ii) If the subrecipient does not award the contract within 90 days of the closure of the solicitation, any modifications or supersedes DOL makes to the wage determination contained in the solicitation shall be effective unless the State recipient, at the request of the subrecipient, obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv). The subrecipient shall monitor the [General Services Administration](#) website on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

(b) If the subrecipient carries out activity subject to DB by issuing a task order, work assignment or similar instrument to an existing contractor (ordering instrument) rather than by publishing a solicitation, the subrecipient shall insert the appropriate DOL wage determination from the [General Services Administration](#) website into the ordering instrument.

(c) Subrecipients shall review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

(d) As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a subrecipient's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the subrecipient has failed to incorporate a wage determination or has used a wage

determination that clearly does not apply to the contract or ordering instrument. If this occurs, the subrecipient shall either terminate the contract or ordering instrument and issue a revised solicitation or ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract or ordering instrument by change order. The subrecipient's contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

3. Contract and Subcontract provisions.

(a) The Recipient shall insure that the subrecipient(s) shall insert in full in any contract in excess of \$2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a treatment work under the CWSRF or a construction project under the DWSRF financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1 or the FY 2013 Continuing Resolution, the following clauses:

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

Subrecipients may obtain wage determinations from the U.S. Department of Labor's [General Services Administration](#) website.

(ii)(A) The subrecipient(s), on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The State award official shall approve a request for an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the subrecipient(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), documentation of the action taken and the request, including the local wage determination shall be sent by the subrecipient (s) to the State award official. The State award official will transmit the request, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification request within 30 days of receipt and so advise the State award official or will notify the State award official within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the subrecipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the request and the local wage determination, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The request shall be sent to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The subrecipient(s), shall upon written request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the subrecipient, that is, the entity that receives the sub-grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or EPA. As to each payroll copy received, the subrecipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the [Wage and Hour Division's](#) webpage or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the subrecipient(s) for transmission to the State or EPA if requested by EPA, the State, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the subrecipient(s).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under §5.5(a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5(a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the “Statement of Compliance” required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the State, EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman’s hourly rate) specified in the contractor’s or subcontractor’s registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice’s level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for

the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA determines may be appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and Subrecipient(s), State, EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

4. Contract Provision for Contracts in Excess of \$100,000.

(a) Contract Work Hours and Safety Standards Act. The subrecipient shall insert the following clauses set forth in paragraphs (a)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by Item 3, above or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (a)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (a)(1) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (a)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The subrecipient, upon written request of the EPA Award Official or an authorized representative of the Department of Labor, shall withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (a)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (a)(1) through (4) of this section.

(b) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Subrecipient shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Subrecipient shall insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

5. Compliance Verification.

(a) The subrecipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence. The subrecipient must use Standard Form 1445 (SF 1445) or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from EPA on request.

(b) The subrecipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. Subrecipients must conduct more frequent interviews if the initial interviews or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. Subrecipients shall immediately conduct necessary interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.

(c) The subrecipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The subrecipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable, the subrecipient should spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract. Subrecipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. In addition, during the examinations the subrecipient shall verify evidence of fringe benefit plans and payments thereunder by contractors and subcontractors who claim credit for fringe benefit contributions.

(d) The subrecipient shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

(e) Subrecipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour [District Office](#).

II. Requirements under the Consolidated and Further Continuing Appropriations Act, 2013 (P.L. 113-6) for Subrecipients that are not Governmental Agencies

The following terms and conditions specify how recipients will assist EPA in meeting its DB responsibilities when DB applies to EPA awards of financial assistance under the FY2013 Continuing Resolution with respect to subrecipients that are not governmental entities. If a subrecipient has questions regarding when DB applies, obtaining the correct DB wage determinations, DB provisions, or compliance monitoring, it may contact the State recipient for guidance. The recipient or subrecipient may also obtain additional guidance from [DOL's](#) webpage.

Under these terms and conditions, the subrecipient must submit its proposed DB wage determinations to the State recipient for approval prior to including the wage determination in any solicitation, contract task orders, work assignments, or similar instruments to existing contractors.

1. Applicability of the Davis- Bacon (DB) prevailing wage requirements.

Under the FY 2013 Continuing Resolution, Davis-Bacon prevailing wage requirements apply to the construction, alteration, and repair of treatment works carried out in whole or in part with assistance made available by a State water pollution control revolving fund and to any construction project carried out in whole or in part by assistance made available by a drinking water treatment revolving loan fund. If a subrecipient encounters a unique situation at a site that presents uncertainties regarding DB applicability, the subrecipient must discuss the situation with the recipient State before authorizing work on that site.

2. Obtaining Wage Determinations.

(a) Subrecipients must obtain proposed wage determinations for specific localities from the U.S. Department of Labor's [General Services Administration](#) website. After the Subrecipient obtains its proposed wage determination, it must submit the wage determination to (insert contact information for State recipient DB point of contact for wage determination) for approval prior to inserting the wage determination into a solicitation, contract or issuing task orders, work assignments or similar instruments to existing contractors (ordering instruments unless subsequently directed otherwise by the State recipient Award Official).

(b) Subrecipients shall obtain the wage determination for the locality in which a covered activity subject to DB will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DB. These wage determinations shall be incorporated into solicitations and any subsequent contracts. Prime contracts must contain a provision requiring that subcontractors follow the wage determination incorporated into the prime contract.

(i) While the solicitation remains open, the subrecipient shall monitor the U.S. Department of Labor's [General Services Administration](#) website on a weekly basis to ensure that the wage determination contained in the solicitation remains current. The subrecipients shall amend the solicitation if DOL issues a modification more than 10 days prior to the closing date (i.e. bid opening) for the solicitation. If DOL modifies or supersedes the applicable wage determination less than 10 days prior to the closing date, the subrecipients may request a finding from the State recipient that there is not a reasonable time to notify interested contractors of the modification of the wage determination. The State recipient will provide a report of its findings to the subrecipient.

(ii) If the subrecipient does not award the contract within 90 days of the closure of the solicitation, any modifications or supersedes DOL makes to the wage determination contained in the solicitation shall be effective unless the State recipient, at the request of the subrecipient, obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv). The subrecipient shall monitor the U.S. Department of Labor's [General Services Administration](#) website on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

(c) If the subrecipient carries out activity subject to DB by issuing a task order, work assignment or similar instrument to an existing contractor (ordering instrument) rather than by publishing a solicitation, the subrecipient shall insert the appropriate DOL wage determination from the U.S. Department of Labor's [General Services Administration](#) website into the ordering instrument.

(c) Subrecipients shall review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

(d) As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a subrecipient's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the subrecipient has failed to incorporate a wage determination or has used a wage determination that clearly does not apply to the contract or ordering instrument. If this occurs, the subrecipient shall either terminate the contract or ordering instrument and issue a revised solicitation or ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract

or ordering instrument by change order. The subrecipient's contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

3. Contract and Subcontract provisions.

(a) The Recipient shall insure that the subrecipient(s) shall insert in full in any contract in excess of \$2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a treatment work under the CWSRF or a construction project under the DWSRF financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1 or the FY 2013 Continuing Resolution, the following clauses:

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

Subrecipients may obtain wage determinations from the U.S. Department of Labor's [General Services Administration](#) website.

(ii)(A) The subrecipient(s), on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The State award official shall approve a request for an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the subrecipient(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), documentation of the action taken and the request, including the local wage determination shall be sent by the subrecipient(s) to the State award official. The State award official will transmit the report, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification request within 30 days of receipt and so advise the State award official or will notify the State award official within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the and the subrecipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the request, and the local wage determination, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The request shall be sent to the EPA Regional Coordinator concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The subrecipient(s) shall upon written request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the

site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the subrecipient, that is, the entity that receives the sub-grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or EPA. As to each payroll copy received, the subrecipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the [Wage and Hour Division's](#) webpage or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the subrecipient(s) for transmission to the State or EPA if requested by EPA, the State, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the subrecipient(s).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under § 5.5(a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5(a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the State, EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and

Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA determines may be appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and Subrecipient(s), State, EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

4. Contract Provision for Contracts in Excess of \$100,000.

(a) Contract Work Hours and Safety Standards Act. The subrecipient shall insert the following clauses set forth in paragraphs (a)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act.

These clauses shall be inserted in addition to the clauses required by Item 3, above or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The subrecipient shall upon the request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (a)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

(c) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Subrecipient shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Subrecipient shall insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

5. Compliance Verification.

(a) The subrecipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence. The subrecipient must use Standard Form 1445 (SF 1445) or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from EPA on request.

(b) The subrecipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. Subrecipients must conduct more frequent interviews if the initial interviews or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. Subrecipients shall immediately conduct necessary interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.

(c) The subrecipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The subrecipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable the subrecipient should spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract. Subrecipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. In addition, during the examinations the subrecipient shall verify evidence of fringe benefit plans and payments thereunder by contractors and subcontractors who claim credit for fringe benefit contributions.

(d) The subrecipient shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

(e) Subrecipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour [District Office](#) or its successor site.

AMERICAN IRON AND STEEL REQUIREMENT

The Contractor acknowledges to and for the benefit of the ECWD No. 1 (“Purchaser”) and the State of Kentucky (the “State”) that it understands the goods and services under this Agreement are being funded with monies made available by the Clean Water State Revolving Fund and/or Drinking Water State Revolving Fund that have statutory requirements commonly known as “American Iron and Steel;” that requires all of the iron and steel products used in the project to be produced in the United States (“American Iron and Steel Requirement”) including iron and steel products provided by the Contractor pursuant to this Agreement.

The Contractor hereby represents and warrants to and for the benefit of the Purchaser and the State that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the State.

Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney’s fees) incurred by the Purchaser or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Purchaser).

While the Contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

Sample Certification

The following information is provided as a sample letter of step certification for AIS compliance. Documentation must be provided on company letterhead.

Date

Company Name
Company Address
City, State Zip

Subject: American Iron and Steel Step Certification for Project (XXXXXXXXXXXX)

I, (company representative), certify that the (melting, bending, coating, galvanizing, cutting, etc.) process for (manufacturing or fabricating) the following products and/or materials shipped or provided for the subject project is in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. XXXX
2. XXXX
3. XXXX

Such process took place at the following location:

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

SECTION 01010
SUMMARY OF WORK

PART 1 GENERAL

1.01 SCOPE OF WORK COVERED BY THE CONTRACT

- A. These Specifications and the accompanying Drawings describe the work to be done and materials to be furnished for the construction of Contract 371-20-01, Water System Improvements, Phase 11 - Zone Meter and River Crossing Installation, Estill County Water District No. 1, Estill County, Kentucky.
- B. The Work is located throughout the existing service area for the Estill County Water District No. 1.
- C. Major work items in this Contract include:
 - 1. Assembly, testing, and installation of 17 zone meters at designated areas in the system as indicated on the drawings.
 - 2. Telemetry upgrades to integrate new zone meters into existing system.
 - 3. Replace 4 existing stream crossing with PE pipe installed via directional drill.

1.02 WORK SEQUENCE

- A. No priorities are assigned to this work.

PART 2 MATERIALS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 02140

DEWATERING

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Furnish all labor and equipment required to dewater all excavations. Dewatering of all excavations shall be the responsibility of the CONTRACTOR, and no additional compensation will be allowed for same unless specifically included as a bid item.
- B. Leaking pipes and structures are to be anticipated on this project. For this reason, no additional payment will be made for dewatering associated with leakage from any existing facility.

1.02 RELATED WORK

- A. Earthwork is included in Section 02200.
- B. Crushed stone and DGA are included in Section 02235.

1.03 SUBMITTALS

- A. None.

PART 2 PRODUCTS

None in this Section.

PART 3 EXECUTION

3.01 GENERAL

- A. Dewatering equipment shall be of adequate size and quantity to assure maintaining proper conditions for installing pipe, concrete, backfill or other material or structure in the excavation. Dewatering shall include proper removal of any and all liquid, regardless of source, from the excavation and the use of all practical means available to prevent surface runoff from entering any excavation.

END OF SECTION

SECTION 02200
EARTH AND ROCK WORK

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Extent of earthwork is indicated on the Drawings.
 - 1. Preparation of subgrade f is included as part of this work.
 - 2. Engineered fill course f is included as part of this work.
 - 3. Backfill is included as part of this work.

1.02 RELATED WORK

- A. Dewatering is included in Section 02140.
- B. Crushed Stone and DGA is included in Section 02235.
- C. Pressure Pipe is included in Section 02610.
- D. Sodding and Seeding is included in Section 02930.

1.03 QUALITY ASSURANCE

- A. Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.
- B. Employ, at CONTRACTOR'S expense, testing laboratory acceptable to the OWNER to perform soil testing and inspection service for quality control testing during earthwork operations.

1.04 SUBMITTALS

- A. Submit following reports directly to the ENGINEER from the testing services, with copy to CONTRACTOR:
 - 1. Verification of subgrade.

1.05 JOB CONDITIONS

- A. Site Information
 - 1. Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or continuity between soil borings. It is expressly understood that OWNER will not be responsible for interpretation or conclusions drawn therefrom by CONTRACTOR. Data are made available for convenience of CONTRACTOR.

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2. Additional test borings and other exploratory operations may be made by CONTRACTOR at no cost to OWNER.

B. Existing Utilities

1. Prior to commencement of work, the CONTRACTOR shall locate existing underground utilities in areas of the work. If utilities are to remain in place, provide adequate means of protection during earthwork operations.

C. Use of Explosives

1. The CONTRACTOR (or any of his subcontractors) shall not bring explosives onto site or use in work without prior written permission from the OWNER. All activities involving explosives shall be in compliance with the rules and regulations of the Kentucky Department of Mines and Minerals, Division of Explosives and Blasting. CONTRACTOR is solely responsible for handling, storage, and use of explosive materials when their use is permitted.
2. In all blasting operations, the maximum peak particle velocity of the ground motion in any direction shall not exceed 2 inches per second at the immediate location of any dwelling house, public building, school, church, commercial or institutional building and the particle velocity at such location immediately after a period of 1 second following the peak particle velocity produced by any charge shall not exceed ½ inch per second.

D. Protection of Persons and Property

1. Barricade open excavations occurring as part of this work and post with warning lights.
2. Operate warning lights as recommended by authorities having jurisdiction.
3. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

PART 2 PRODUCTS

2.01 SOIL MATERIALS

A. Definitions

1. Satisfactory soil materials are defined as those complying with ASTM D2487-85 soil classification groups GW, GP, GM, SM, SW, SP, GC, SC, ML, and CL.
2. Unsatisfactory soil materials are defined as those complying with ASTM D2487-85 soil classification groups MH, CH, OL, OH and PT.

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3. Subbase material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, crushed slag, natural or crushed sand.
4. Drainage fill: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel, with 100 percent passing a 1-1/2 inch sieve and not more than 5 percent passing a No. 4 sieve.
5. Backfill and fill materials: Satisfactory soil materials free of debris, waste, frozen materials, vegetable, and other deleterious matter.
6. Engineered fill: (Refer to this Section, paragraph 3.07.)

PART 3 EXECUTION

3.01 STRIPPING AND TOPSOILING

- A. Before excavation and grading is commenced for work described hereinafter or before material is removed from borrow pits, the material meeting the topsoil specification in Section 02930 of these Specifications shall be removed from the areas affected and stockpiled.
- B. When final grading is accomplished, particularly around buildings and other structures, the topsoil shall be spread evenly over the excavated area. Rough grading above excavated areas shall have been carried approximately 6 inches below finished grade (except solid rock, where it shall be carried 12 inches below finished grade) and brought back up to grade with topsoil as set out herein.

3.02 EXCAVATION

- A. Excavation includes excavation to subgrade elevations indicated including excavation of earth, rock, bricks, wood, cinders, and other debris. All excavation of materials in the lump sum portion of the work will be unclassified and no additional payment will be made regardless of type material encountered.
- B. Differing Site Conditions
 1. Refer to Section 00700, paragraph 5.04.
- C. Excavation Classifications
 1. All excavation is unclassified and will be considered incidental to the proposed meter installation.
- D. Stability of Excavations
 1. Slope sides of excavations to comply with codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.
 2. Maintain sides and slopes of excavations in safe condition until completion of backfilling.

E. Shoring and Bracing

1. Provide materials for shoring and bracing, such as sheet piling, uprights, stringers, and cross-braces, in good serviceable condition.
2. Establish requirements for trench shoring and bracing to comply with codes and authorities having jurisdiction.
3. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.
4. Provide permanent steel sheet piling or pressure creosoted timber sheet piling wherever subsequent removal of sheet piling might permit lateral movement of soil under adjacent structures. Cut off tops as required and leave permanently in place. In the event the OWNER directs the CONTRACTOR to leave shoring materials in place, the OWNER will reimburse the CONTRACTOR for the reasonable cost of leaving such materials in place.

F. Dewatering

1. Refer to Section 02140 for dewatering requirements.

G. Material Storage

1. Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade, and shape stockpiles for proper drainage.
2. Dispose of excess soil material and waste materials as herein specified.

H. Excavation for Structures

1. Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 feet and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection.
2. In excavating for footings and foundations, take care not to disturb bottom of excavation. All loose material shall be removed from the excavation just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive other work.

I. Excavation for Pavements

1. Cut surface under pavements to comply with cross-sections, elevations, and grades as shown.

J. Trench Excavation

1. The CONTRACTOR shall include in his lump sum bid all trenching and backfill necessary for installation of all pipelines as planned and specified

unless specific unit prices are set up for specific pipeline. Trenching shall include clearing and grubbing of all trash, weeds, briars, trees and stumps encountered in the trenching. The CONTRACTOR shall dispose of such material at no extra cost to the OWNER. Shrubs shall be removed, maintained and replanted in the same or adjacent location. Trenching also includes such items as railroad, street, road, sidewalk, pipe, and small creek crossings; cutting, moving or repairing damage to fences, posts, gates, and other surface structures regardless of whether shown on the Drawings.

2. All existing facilities shall be protected from danger or damage while pipelines are being constructed and backfilled, and from damage due to settlement of the backfill.
3. In the event any existing structure is damaged, repair and restoration shall be made at once and backfill shall not be replaced until this is done. Restoration and repair shall be such that the damaged structure is equal to or better than its original condition and can serve its purpose as completely as before. All such restoration and repair shall be done without extra cost to the OWNER.
4. Trenches must be dug to lines and grades shown on the Drawings. Hand trenching may be required in areas where machine trenching would result in undue damage to existing structures and facilities.
5. Excavation shall be open trenches, except where otherwise shown on the Drawings, for tunneling, boring, or jacking under structures, railroad, sidewalks and roads.
6. Sheeting and shoring of trenches shall be provided at the expense of the CONTRACTOR where necessary to protect life, property and the new or existing structures from damage or to maintain maximum permissible trench widths at top of pipe. All necessary materials, including, but not limited to, sheeting, sheet piling, trench jacks, braces, shores and stringers, shall be used to hold trench walls. Sheeting and shoring may be withdrawn as the trenches are being backfilled, after backfill has been tamped over top of the pipe at least 18 inches. If removal before backfill is completed to surface endangers adjacent structures, such as buildings, pipelines, street paving, and sidewalks, then the sheeting and shoring shall be left in place until such danger has passed, and then pulled if practical. Voids caused by sheeting withdrawal shall be backfilled and tamped. If not withdrawn, sheeting shall be cut off at least 18 inches below final surface grade, so there is no obstruction at the ground level. In the event the OWNER directs the CONTRACTOR to leave shoring materials in place, the OWNER will reimburse the CONTRACTOR for the reasonable cost of leaving such materials in place.
7. Where subgrade of trench has insufficient stability to support the pipeline and hold it to its original grade, the ENGINEER may order stabilization by various means. Exclusive of dewatering normally required for construction, and instability caused by neglect of the CONTRACTOR, the

necessary stabilization shall be paid for at unit prices established in the Contract. In the event no particular bid price is applicable, then the payment for stabilization will be negotiated.

8. The location of the pipelines and their appurtenances as shown are those intended for the final construction. However, conditions may present themselves before construction on any line is started that would indicate desirable changes in location. The OWNER reserves the right to make reasonable changes in line and structure locations without extra cost, except as may be determined by extra units of materials and construction actually involved. The OWNER is under no obligation to locate pipelines, so they may be excavated by machine.
9. Tunneling may be used at the CONTRACTOR'S option as an alternate to open-cut trenching, at no extra cost to the OWNER. The annular space between plates and excavation shall be either permanently placed pea gravel or sand, pumped grout (3 parts sand and 1 part Portland cement by volume) or other suitably installed material approved by the ENGINEER. Backfilling shall be kept close to the heading and completed after each day's work. Where grout is used for backfill, injection holes with threaded plugs shall be provided in liner plates at various levels and in sufficient number to effectively grout the void around the tunnel. A minimum of 3 grout holes shall be provided in each 8 feet of tunnel length. Grout shall be injected in the lower holes first, proceeding upward as the void is filled. Plugs shall be installed after each hole is filled and grout stops shall be provided behind plates as necessary to ensure complete filling of the void. In tunneling under buildings, the CONTRACTOR will be responsible for all damage resulting from his operations and methods of excavation and backfilling. Boring may also be used at the CONTRACTOR'S option as an alternate to tunneling or open-cut trenching, at no extra cost to the OWNER.
10. Dig trenches to the uniform width required for the particular item to be installed, sufficiently wide to provide ample working room. Provide 6-inch to 9-inch clearance on both sides of pipe or conduit.
 - a. Excavate trenches to depth indicated or required. Carry depth of trenches for piping to establish indicated flow lines and invert elevations. Keep bottoms of trenches sufficiently below finish grade to avoid freeze-ups.
 - b. Where rock is encountered, carry excavation 6 inches below required elevation and backfill with a 6-inch layer of crushed stone or gravel prior to installation of pipe.
 - c. For pipes or conduit 4 inches or smaller in nominal size, excavate to subbase depth indicated or, if not otherwise indicated, to 4 inches below bottom of work to be supported.
 - d. For pipes or conduit 6 inches or larger in nominal size, tanks, and other mechanical/electrical work indicated to receive subbase,

excavate to subbase depth indicated or, if not otherwise indicated, to 6 inches below bottom of work to be supported.

- e. Except as otherwise indicated, excavation for exterior water-bearing piping (water, steam, condensate, drainage) so top of piping is no less than 2 feet 6 inches below finish grade.
- f. Grade bottoms of trenches as indicated, notching under pipe bells to provide solid bearing for entire body of pipe.
- g. Backfill trenches with concrete where trench excavations pass within 18 inches of column or wall footings and which are carried below bottom of such footings, or which pass under wall footings. Place concrete to level of bottom of adjacent footing.
- h. Do not backfill trenches until tests and inspections have been made and backfilling authorized by the ENGINEER. Use care in backfilling to avoid damage or displacement of pipe systems.
- i. For piping or conduit less than 2 feet 6 inches below surface of roadways, furnish and install steel casing pipe, minimum wall thickness of 1/4-inch, of sufficient diameter to carry the pipe or conduit to at least 2 feet beyond outside edge of pavement.

K. Cold Weather Protection

- 1. Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees Fahrenheit (1 degree Celsius).

3.03 COMPACTION

A. General

- 1. Control soil compaction during construction providing minimum percentage of density specified for each area classification indicated below:
 - a. Percentage of maximum density requirements: Compact soil to not less than the following percentages of maximum density for soils which exhibit a well-defined moisture density relationship (cohesive soils) determined in accordance with ASTM D698; and not less than the following percentages of relative density, determined in accordance with ASTM D4253 and D4254, for soils which will not exhibit a well-defined moisture-density relationship (cohesionless soils).
 - b. Structures, building slabs and steps, pavements: Compact top 12 inches of subgrade and each layer of backfill or fill material at 95 percent standard proctor density at +2 percent to -2 percent optimum moisture content.

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- c. Lawn or unpaved areas: Compact top 6 inches of subgrade and each layer of backfill or fill material at 90 percent standard proctor density.
- d. Walkways: Compact top 6 inches of subgrade and each layer of backfill or fill material at 95 percent standard proctor density at +2 percent to -2 percent optimum moisture content.

B. Moisture Control

- 1. Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface or subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.
- 2. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
- 3. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value.

3.04 BACKFILL AND FILL

A. General

- 1. Place acceptable soil material in layers to required subgrade elevations, for each area classification listed below. Backfill material shall be no larger than the specified depth of the layer to be placed and/or compacted.
 - a. In excavations, use satisfactory excavated or borrow material.
 - b. Under grassed areas, use satisfactory excavated or borrow material.
 - c. Under walks and pavements, use subbase material, or satisfactory excavated or borrow material, or combination of both.
 - d. Under steps, use subbase material.
 - e. Under building slabs, use subbase material for a minimum depth of 6 inches.

B. Backfill excavations as promptly as work permits, but not until completion of the following:

- 1. Acceptance of construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.

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2. Inspection, testing, approval, and recording locations of underground utilities.
3. Removal of concrete formwork.
4. Removal of shoring and bracing, and backfilling of voids with satisfactory materials. Cut off temporary sheet piling driven below bottom of structures and remove in manner to prevent settlement of the structure or utilities, or leave in place if required.
5. Removal of trash and debris.
6. Permanent or temporary horizontal bracing is in place on horizontally supported walls.

C. Ground Surface Preparation

1. Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow, strip, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so that fill material will bond with existing surface.
2. When existing ground surface has a density less than that specified under "Compaction" for particular area classification, break up ground surface, pulverize, moisture condition to optimum moisture content, and compact to required depth and percentage of maximum density.

D. Placement and Compaction

1. Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers. Crushed stone shall be installed in accordance with Section 02235.
2. Before compaction, add moisture or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
3. Place backfill and fill materials evenly adjacent to structures, piping, or conduit to required elevations. Take care to prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping, or conduit to approximately same elevation in each lift.

E. Backfilling Trenches

1. Refer to Section 02610 or Section 02700 as appropriate for trench backfill requirements.

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3.05 GRADING

A. General

1. Uniformly grade areas within limits of grading under this Section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.

3.06 PAVEMENT SUBBASE COURSE

A. General

1. Subbase course consists of placing subbase material, in layers of specified thickness, over subgrade surface to support a pavement base course.

B. Grade Control

1. During construction, maintain lines and grades including crown and cross-slope of subbase course.

C. Shoulders

1. Place shoulders along edges of subbase course to prevent lateral movement. Construct shoulders of acceptable soil materials, placed in such quantity to compact to thickness of each subbase course layer. Compact and roll at least a 12-inch width of shoulder simultaneously with compacting and rolling of each layer of subbase course.

D. Placing

1. Place subbase course material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting subbase material during placement operations.
2. When a compacted subbase course is shown to be 6 inches thick or less, place material in a single layer. When shown to be more than 6 inches thick, place material in equal layers, except no single layer more than 6 inches or less than 3 inches in thickness when compacted.

END OF SECTION

SECTION 02235

CRUSHED STONE AND DENSE GRADED AGGREGATE (DGA)

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish and install crushed stone aggregates and DGA as indicated on the Drawings and/or required in the Specifications for such uses as surfaces and/or bases of roads, parking areas and walkways; temporary and permanent traffic bound surfacing over trenches; permanent traffic bound roadway surface maintenance; replacement of unsuitable material; and other miscellaneous applications required in the work.
- B. Various sizes, types and quality of crushed stone aggregates are specified in this Section depending on applicability which may be specified in detail in other sections of these Specifications.
- C. The ENGINEER may require the use of crushed stone aggregates for purposes other than those specified in this or other Specification sections if such use is advisable in his opinion. Payment for crushed stone aggregate shall be by negotiation unless agreed pricing has been previously established.

1.02 RELATED WORK

- A. Dewatering is included in Section 02140.
- B. Earthwork is included in Section 02200.

1.03 SUBMITTALS

- A. Testing Service shall submit required test reports directly to the ENGINEER with copy to CONTRACTOR.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Crushed stone aggregate shall meet the applicable requirements for the intended use in accordance with Section 805 of the Kentucky Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction.
- B. Unless otherwise referred to on the Drawings or in these Specifications, crushed stone aggregate shall be graded size No. 57 according to the table below.
- C. When referred to on the Drawings or in these Specifications, dense graded aggregate (DGA) shall have a sand equivalent value of not less than 25 and shall be graded according to the table below.

D. Coarse aggregate gradations referred to by number size on the Drawings or in these Specifications shall conform to the following table (as copied from the above Kentucky Transportation Cabinet Specifications, page 805-16, 2019 edition):

TABLE I - SIZES OF COARSE AGGREGATES - KENTUCKY

Size	Max. Size Square Openings (1)	AMOUNTS FINER THAN EACH LABORATORY SIEVE (SQUARE OPENINGS) PERCENTAGE BY WEIGHT																	
		100 (4)	90 (3 1/2)	75 (3)	63 (2 1/2)	50 (2)	37.5 (1-1/2)	25 (1)	19 (3/4)	12.5 (1/2)	9.5 (3/8)	4.75 (No. 4)	2.36 (No. 8)	2 (No. 10)	1.18 (No. 16)	600 (3) (No. 30)	425 (3) (No. 40)	150(3) (No. 100)	75 (3) (No. 200)
1	90 (3 1/2)	100	90-100		25-60		0-15		0-5										
2	63 (2 1/2)			100	90-100	35-70	0-15		0-5										
23	63 (2 1/2)			100		40-90		0-15		0-5									
3	50 (2)				100	90-100	35-70	0-15		0-5									
357	50 (2)				100	95-100		35-70		10-30		0-5							
4	37.5 (1-1/2)					100	90-100	20-55	0-15		0-5								
467	37.5 (1-1/2)					100	95-100		35-70		10-30	0-5							
5	25 (1)						100	90-100	20-55	0-10	0-5								
57	25 (1)						100	95-100		25-60		0-10	0-5						
610	25 (1)						100	85-100		40-75		15-40							
67	19 (3/4)							100	90-100		20-55	0-10	0-5						
68	19 (3/4)							100	90-100		30-65	5-25	0-10		0-5				
710	19 (3/4)							100	80-100		30-75	0-30							
78	12.5 (1/2)								100	90-100	40-75	5-25	0-10		0-5				
8	9.5 (3/8)									100	85-100	10-30	0-10		0-5				
9-M	9.5 (3/8)									100	75-100	0-25	0-5						
10	4.75 (No. 4)										100	85-100						10-30	
11	4.75 (No. 4)											100	40-90	10-40					0-5
DGA(2)	19 (3/4)							100	70-100		50-80	30-65			10-40				2-10
GRAVEL BASE(2)	37.5 (1-1/2)					100						25-65					6-30	5-20	
CSB(2)	50 (2)				100		90-100		60-95		30-70	15-55				5-20			0-8

(1) Nominal size in mm (inches), unless otherwise shown

(2) Gradation performed by wet sieve KM 64-420

(3) micrometers

E. Testing

1. Unless otherwise required in this Section, the ENGINEER shall determine the tests required for crushed stone aggregates according to Section 805. The CONTRACTOR shall be responsible, initially and periodically at no cost to the OWNER, to deliver materials proposed for use or being used in the work to a testing laboratory selected by the OWNER. This provision shall apply to any other aggregate tests required in this Section.
2. The OWNER shall be responsible to pay the laboratory testing costs. However, once a material has been tested and accepted for use, the CONTRACTOR shall be responsible throughout the job to use materials which are equal in all respects and from the same source as that accepted material delivered to the testing laboratory.
3. The CONTRACTOR shall pay for additional tests ordered by the ENGINEER after acceptance of tested materials when such tests show the quality of materials has become deficient or when the CONTRACTOR requests a change of material supplier and/or source.

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4. The ENGINEER shall request tests on Form HKB DE-16 "Requisition for Material and Design Mix Tests."

PART 3 EXECUTION

3.01 INSTALLATION

A. Compacted Crushed Stone Aggregate

1. Crushed stone shall be placed in uniform layers not greater than 6 inches deep and shaped by power equipment to required lines, grades, cross connections, and depths. No minimum compacted density, method of compaction, or compaction equipment is required since a nominal amount of compaction effort with vibration can establish the desired intergranular locking of the aggregate under controlled placement depth. Acceptable compaction can be achieved with pneumatic-tired and tracked equipment and rollers.
2. All compaction operations shall be performed to the satisfaction of the ENGINEER.
3. Crushed stone shall be placed in those areas as shown on the Drawings and as may be directed by the ENGINEER.

B. Compacted Dense Graded Aggregate (DGA)

1. Dense graded aggregate shall be plant mixed with water, transported in such a manner as to deliver the mix to the project without loss or segregation, spread, and compacted to produce a density throughout not less than 84 percent of solid volume. Minimum dry density for compacted limestone DGA shall be 139 pounds per cubic foot when S.G. of limestone is 2.65.
2. Density tests shall be required in such number as determined by the ENGINEER. Density tests shall be made by the sand cone method or by nuclear gauges. The CONTRACTOR shall furnish all necessary labor, equipment and materials for making the density tests under observations of the ENGINEER.
3. In the event compacted material does not meet the required density of an area, the CONTRACTOR shall either continue compaction efforts or rework the entire area until the required density is obtained. If material has to be removed and reworked, the ENGINEER shall determine if removed material can be remixed and used again for fill.
4. All compacted DGA fill shall be included in the CONTRACTOR'S lump sum bid unless otherwise indicated on the Drawings.

END OF SECTION

02235-3

SECTION 02400
STREETS, ROADS AND PARKING AREAS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Provide all labor, materials, equipment, and services required to construct all replacements as shown on the Contract Drawings and as specified herein.

1.02 RELATED WORK

- A. Crushed stone, DGA, paving and concrete are specified in other sections of Divisions 2 and 3.

1.03 SUBMITTALS

- A. Shop drawings, manufacturer's data and other items needed to establish compliance with the Drawings and these Specifications shall be submitted to the ENGINEER in accordance with Section C-700.

1.04 WARRANTY

- A. Refer to Section C-700 for general warranty requirements.

PART 2 PRODUCTS

2.01 CONSTRUCTION MATERIALS

- A. Concrete materials and methods of installation are specified in Section 03300.
- B. Drainage pipe and methods of installation are specified in Section 02700.
- C. Crushed stone and dense graded aggregate materials are specified in Section 02235.
- D. Guardrail, drainage grates and other related equipment is specified in Division 5-Metals.
- E. Geotextiles are specified in Section 02270.
- F. Bituminous paving materials and methods of placement are specified in Section 02500.
- G. Concrete paving materials and methods of placement are specified in Section 02510.
- H. Fencing materials and methods of installation are specified in Section 02830.
- I. Sodding and seeding materials and methods of construction are specified in Section 02930.

PART 3 EXECUTION

3.01 DELIVERY, STORAGE AND HANDLING

A. Clearing and Grubbing

1. Clearing and grubbing requirements shall be as stated in Section 202 of KTCSSRBC except that the method of payment as stated therein shall not apply.

B. Removal of Structures and Obstructions

1. Removal of structures and obstructions requirements shall be as stated in Section 203 - KTCSSRBC.

C. Roadway and Drainage Excavation

1. The requirements for roadway and drainage excavation shall be as stated in Section 204 of KTCSSRBC.

D. Borrow Excavation

1. The requirements for borrow excavation shall be as stated in Section 205 of KTCSSRBC.

E. Roadway Structure Excavation

1. The requirements for roadway structure excavation shall be as stated in KTCSSRBC Section 206.

F. Roadway Embankment

1. The requirements for roadway embankments shall be as stated in KTCSSRBC Section 207.

G. Roadway Subgrade

1. The requirements for roadway subgrade shall be as stated in KTCSSRBC Section 208.

H. Roadway Shoulders

1. The requirements for roadway shoulder construction shall be as stated in KTCSSRBC Section 209.

I. Ditching and Shouldering

1. The requirements for ditching and shouldering shall be as stated in KTCSSRBC Section 210.

J. Final Dressing

1. The requirements for final roadway dressing shall be as stated in KTCSSRBC Section 211. Final dressing shall meet the requirements under Final Dressing - Class A.

K. Erosion Control

1. Requirements for erosion control shall be as delineated in Section 02930 - Sodding and Seeding of these Specifications. When work is located within Department of Highways rights-of-way, the requirements for erosion control shall be as delineated in KTCSSRBC - Section 212.

L. Water Pollution Control

1. The requirements for water pollution control shall be per KTCSSRBC Section 213.

M. Drainage Structures and Conduits

1. The requirements for drainage structures and conduits shall be as specified in Section 02700 - Sewer and Drain Pipe.

N. Aggregate Surfaces and Base Courses for Paved Surface

1. The requirements for crushed stone aggregate and base courses for paved surfaces are specified in Section 02235.

O. Paved Surfaces

1. Bituminous Pavements
 - a. The requirements for bituminous paving are as shown in Section 02500 of these Specifications.

END OF SECTION

SECTION 02500
ASPHALT PAVING

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR shall be required to supply all materials and equipment and perform all work for the placement of the base, binder, or surface course(s) for restoring to the preconstruction condition the surface of the existing streets, roads, drives and parking areas to the depths as shown in the detailed Drawings and as specified herein.

1.02 REFERENCES

- A. Unless noted, all Specifications designations denoted KTCSSRBC refer to the Kentucky Transportation Cabinet Department of Highways Standard Specification for Road and Bridge Construction. Appropriate technical portions of the referenced sections of the Specifications shall apply, but all work and method of payment shall be as described herein unless otherwise specified or shown on the Drawings.

1.03 RELATED WORK

- A. Special sequence or schedule requirements (if any) are specified in Section 01010 - Summary of Work.
- B. Special requirements for materials and equipment are given in Section C-700.
- C. Crushed stone surfacing requirements, temporary and permanent replacement, are specified in Section 02235 of these Specifications.
- D. New streets, roads and parking area material and construction are specified in Section 02400.

1.04 WORK DESCRIPTION

- A. Asphalt shall be used for surfacing new roads and parking areas, for replacement of city streets, drives, parking areas and state highways of asphalt construction and for resurfacing existing roads and state highways at locations shown on the Drawings or specified.

1.05 QUALIFICATIONS

- A. The pavement design mixture shall be used as determined by local plant mix availability. The design mixture shall have been approved recently by the Kentucky Transportation Cabinet Department of Highways and used recently on a state paving project.
- B. The design mix shall be submitted to the ENGINEER for review and acceptance. The submittal shall include the following:

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1. The last date the mixture was approved by the Kentucky Transportation Cabinet Department of Highways for use on a state road project.
2. The location where the mixture was recently used, and the name and address of the paving contractor.

1.06 SUBMITTALS

- A. Prebid submittals, when required, are specified in Section 00820 - Special Conditions of these specifications.
- B. Shop Drawings, manufacturers data and other items needed to establish compliance with the Drawings and Specifications shall be submitted to the ENGINEER in accordance with Section 00700.

1.07 WARRANTY

- A. Refer to Section 01600 for warranty requirements.

PART 2 PRODUCTS

2.01 ASPHALT PAVING

A. Mixture

1. The asphaltic paving provided for use on this Contract shall conform to the applicable requirements of KTCSSRBC Section 401, Asphalt Plant Requirements; Section 402, Control and Acceptance of Asphalt Mixtures; and Section 403, Production and Placement of Asphalt Mixtures. The pavement mixture shall meet the requirements of Section 403.03.03.
- B. Fine aggregates shall meet the requirements of KTCSSRBC Section 804.
- C. Coarse aggregates shall meet the requirements of KTCSSRBC Section 805.
- D. Asphaltic materials shall meet the requirements of KTCSSRBC Section 806.
- E. Asphaltic materials for tack coat shall be one of the following: SS-1, SS-1h, CSS-1, CSS-1h, AE-60, RS-1, or CRS-1, conforming to Section 406.

2.02 FACILITIES ADJUSTMENT MATERIALS

- A. Manhole adjusting rings shall be cast iron, Neenah R-1979, J.R. Hoe, or equal. Maximum adjustment shall be 3 inches.
- B. Valve box adjusting rings shall be cast iron, Tyler Type MWW riser with 3 inches maximum adjustment.

2.03 PAVEMENT STRIPING MATERIALS

- A. Pavement striping for all areas to receive asphalt paving, whether full width pavement overlay, trench width pavement replacement, or newly constructed access roads or parking areas, shall meet the requirements of Section 713 of the KTCSSRBC for placement and Section 842 for striping material.

2.04 TRAFFIC CONTROL SIGNAL LOOPS

- A. Where possible, traffic control signal loops shall be avoided in the location of new or replacement pipelines. Should the traffic control loops be damaged or destroyed by pipeline construction, they shall be replaced to the specification of the requirements of the entity who is the owner and operator of the traffic control facilities.

PART 3 EXECUTION

3.01 GENERAL

- A. Construction requirements shall conform to applicable requirements of Section 403 of KTCSSRBC.
- B. A tack coat shall be required to bond new paving to the surface of concrete or brick pavements and bases or existing asphalt surfaces. It shall be applied at the rate of 0.8 pound (0.1 gallon) per square yard at the following range of application temperatures:

SS-1, SS-1h, CSS-1, CSS-1h, AE-60	70-160°F
RS-1	70-140°F
CRS-1	120-185°F

- C. When SS1, SS1h, CSS1, CSS1h, or AE60 is furnished for tack material, it shall be diluted with an equal quantity of water conforming to Section 803, shall be thoroughly mixed prior to application, and shall be applied a sufficient time in advance of the paver to ensure that all water has evaporated before the asphalt mixture is placed. The application rate shall be 0.8 pound (0.1 gallon) per square yard of the diluted SS1, SS1h, CSS1, CSS1h, or AE60.
- D. Where asphalt paving is placed against vertical surfaces such as curbs, gutters, manhole frames, valve boxes, etc., the vertical face shall be tack coated in order to seal the surface. Where these surfaces are inaccessible to pressure distributor, the tack coat may be brushed or broomed into place. The tack coat shall not be allowed to spill over onto any horizontal surface outside the area to be paved.
- E. Unless otherwise indicated on the Drawings or in these Specifications, the compacted thickness of the asphalt paving shall be a minimum of 1 inch and the minimum ambient temperature for mixing and laying temperatures shall be as follows:

Open Graded Friction Course	60°F
Asphalt Mixture (1-Inch Thick)	45°F
Asphalt Mixture (thicker than 1-inch)	40°F
Asphalt Mixture (Base and Binder)	35°F
Leveling and Wedging	45°F

- F. Trucks for hauling asphaltic mixtures shall have tight, clean, and smooth metal beds that have been sprayed with a minimum amount of soap emulsion, paraffin oil, or other approved material which is not detrimental to the mixture to prevent the mixture from adhering to the beds. All trucks shall be equipped with covers of sufficient size to completely cover the loaded material, and all covers shall be

securely fastened in place before the truck leaves the plant. Truck beds shall be insulated, when necessary, to maintain the specified temperature to the point of delivery. Any truck causing excessive segregation of material by its spring suspension or other contributing factors, shall be discharged from the work, until such conditions are corrected.

- G. The CONTRACTOR shall have an accurate thermometer on the job at all times for verifying all temperature requirements and for taking temperature measurements whenever requested by the ENGINEER or OWNER. The CONTRACTOR shall closely control temperature and compaction requirements in order to achieve quality asphalt paving and related work.
- H. Asphalt paving which fails as the result of not meeting the requirements of these Specifications shall be removed and replaced as directed by the ENGINEER at the CONTRACTOR'S expense.
- I. Where manhole frames, valve boxes, drainage grates, etc., are located within the area to receive asphalt paving replacement, those facilities shall be adjusted to final pavement grade prior to the placement of the asphalt surface. Where the facilities to be adjusted are the property of the OWNER, the CONTRACTOR shall adjust the facilities with the cost included in the CONTRACTOR'S bid for asphalt replacement. Where the facilities to be adjusted are the property of other utility companies, i.e., gas, water, electric, telephone, the CONTRACTOR shall notify each utility company of the schedule for repaving of the particular area to allow those companies sufficient time to adjust their facilities prior to beginning the repaving process.
- J. Where pavement striping is destroyed or damaged, it shall be replaced per the requirements stated herein. The cost of all striping, unless stated otherwise in these specifications, shall be included in the price bid for pavement replacement.
- K. Damaged or destroyed traffic control loops shall be replaced per the requirements of the traffic control operator with the cost incorporated into the CONTRACTOR'S bid for pavement replacement.

3.02 PAVING OF NEW STREETS, ROADS AND PARKING AREAS

- A. The placement of asphalt paving for new streets, roads and parking areas shall meet the requirements of KTCSSRBC - Section 403.

3.03 FULL WIDTH PAVING OF EXISTING STREETS, ROADS AND PARKING AREAS

- A. Where the entire width of the existing asphalt paved street damaged by construction is to be resurfaced, the existing pavement shall be cleaned and tack coated, and asphalt paving shall be hot applied as previously described in Article 3.02 herein.
- B. The preparation of the base shall include removal of unstable material from the disturbed areas, removal of excess crushed rock from the trench to same level as the existing asphalt pavement and addition of compacted crushed rock (DGA) to the trench or where needed. No cutting of edges of existing paving will be required.

- C. The ENGINEER will determine if and where leveling courses are required before application of surface courses. The leveling course shall be hot applied and rolled similarly to the surface course.
- D. The surface course shall be 2 inches thick applied to the entire width of the street, unless otherwise directed by the ENGINEER. The surface course shall be feathered out to a thickness of 1 inch at the front of existing gutters. The point where feathering shall begin and the amount of feathering shall be controlled by the ENGINEER. Where there are no gutters, feathering of edges will not be done unless otherwise directed by the ENGINEER in order to conform to existing features, such as driveways.
- E. Payment for the surface course shall be by the linear feet of full width pavement replaced.
- F. No extra payment will be allowed for tack coat, removal of unstable material, compacted dense graded aggregate (DGA) used to replace unstable material, removal of excess crushed rock from the trench to the grade of existing pavement, and cleaning of the surface.

3.04 TRENCH WIDTH REPAVING-CITY AND COUNTY STREETS, ROADS AND PARKING AREAS

- A. The cut edges of the existing paving surface shall be trimmed a depth of at least 2 inches to straight lines for uniform appearance and clean surface at joints. The area between the cut edges of the paving shall be removed to a depth of 2 inches (minimum) or to the bottom of the existing paving. All unstable material in the trench shall be removed and replaced with compacted dense graded aggregate and dense graded aggregate added as needed to bring the base surface to the bottom of existing paving or 2 inches below the existing surface, whichever is the lower. Dense graded aggregate required for stabilizing the subgrade will be paid for as an extra, but no extra payment will be allowed for removal of unstable back-fill.
- B. The paving subgrade shall be compacted under the wheel of a roller, until there is no observed settlement of the subgrade.
- C. The sides of existing pavement shall be covered with a tack coat and asphalt paving shall be hot applied as previously described. Final surface shall be finished to 1/4-inch above existing paving surface at edges and crowned to 1/2-inch above existing surface at the center.
- D. Payment for asphalt repaving shall be per linear foot of pipeline covered to any width the CONTRACTOR shall find necessary to remove plus width of cut back to secure clean straight edges, and shall include excavation to subgrade, preparation of subgrade, cleaning edges of existing paving, tack coat, and all operations and materials planned and specified for this type of repaving. The CONTRACTOR shall maintain such repaving up to grade of existing street surface until final completion and acceptance of work under his Contract. During the guarantee period of one year, the CONTRACTOR will be responsible for defective materials or workmanship, and natural settlement.

- E. In case additional asphalt paving is to be added due to settlement, the surface which has experienced settlement shall be cut out, additional dense graded aggregate added if necessary, tack coat applied to the existing sides of existing pavement, and the paving in the settled area(s) replaced. Additional payment will not be allowed for the repair work required.

3.05 TRENCH WIDTH REPAVING-STATE MAINTAINED STREETS AND HIGHWAYS

- A. Streets, roads and highways maintained by the Kentucky Transportation Cabinet Department of Highways shall be repaved in accordance with details shown on the attached Department of Highways Drawing No. TD 99-13, latest revision.
- B. Concrete base slab shall be cleaned and tack coated, and asphalt paving shall be hot applied as previously described.
- C. Payment for replacement of asphalt paving on state maintained streets and roads, where concrete base slab and asphalt surface are required, shall be per foot of pipeline covered, and shall include excavation, crushed rock or flowable fill backfill, base courses, concrete base slab, tack coat, and asphalt surfacing. Widths, depths, and other details and methods of application shall be as shown on attached drawing and as required by the Kentucky Transportation Cabinet Department of Highways.
- D. The CONTRACTOR shall maintain the surface of all state highways and state maintained streets to grade during the entire guarantee period of the Contract.

3.06 CROSSWALK MARKINGS

- A. Crosswalk marking shall meet the requirements Section 3B.18 of the Manual of Uniform Traffic Control Devices (MUTCD).

END OF SECTION

SECTION 02610

PRESSURE PIPE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. This section includes all piping that is normally full pipe flow whether under pressure from a pump, blower, compressor, etc., or by gravity between tanks, basins, or pumps and equipment. This includes, but is not limited to, finished water piping, etc.
- B. Pipe that is normally empty but may be full or have partially full pipe flow when in service, such as basin or tank overflows, or that are normally empty, such as tank for basin vent pipes, are included here.

1.02 RELATED WORK

- A. Valves are specified in Division 15.

1.03 SUBMITTALS

A. General

- 1. Prior to the shipment of any water and/or sewage force main piping to the project site, the CONTRACTOR shall submit to the ENGINEER a bill of materials.

B. Plant and Site Piping

- 1. Submit shop drawings, including descriptive literature for all piping, in the number of copies listed in Section 00700/00710 of these Specifications, of all interior and exterior piping.
- 2. Submit testing and certifications for interior and exterior piping.

1.04 REFERENCES

- A. Where standards for materials or construction of equipment, etc., are noted such as ANSI, AWWA, ASTM, etc., the edition of the standard to be used shall be the edition in existence at the time of the advertisement for bid, unless a specific year's standard is noted.

PART 2 PRODUCTS

2.01 MATERIALS–METAL PIPE

A. Ductile Iron Pipe–Mechanical and Rubber Slip Joint Type

1. Pipe

a. General

(1) Ductile iron pipe shall be furnished for all piping 3 inches and over in size designated "D.I." on Drawings and shall be designed in accordance with ANSI/AWWA C150/A21.50 and ANSI/AWWA C151/A21.51 specifications and supplements thereto.

b. Design Conditions

(1) Pressure: Minimum 150 to 350 psi operating pressure, plus 100 psi water hammer allowance. For pipes from water holding basins the water hammer allowance is not required.

(2) Trench Loading: Laying Condition Type 3, depth of cover as shown on Drawings.

(3) The pressure rating of the pipe supplied shall be as needed to handle the anticipated pressure in the line. For example, if the anticipated pressure of a line is 10 psi with no water hammer and the pipe is available in 150, 200, 250, 300 and 350 psi pressure classes, pressure class 150 psi may be supplied as it will handle the anticipated pressure. If the pipeline has an anticipated pressure of 60 psi plus water hammer the required pipe pressure class would need to be something greater than 150 psi.

c. Metal Design Strength PSI (Minimum)

Tensile Strength	60,000
Yield Strength	42,000
Percent Elongation	10

d. Minimum Nominal Thickness

(1) Minimum design thicknesses for 200 through 350 psi operating pressures, depths of cover, trench loading and other conditions shall be per ANSI/AWWA C150/ A21.50 specifications.

e. Lengths

- (1) Pipe may be furnished in 18 or 20 foot nominal laying lengths.

f. Marking

- (1) The net weight, class or nominal thickness, and casting period shall be shown on each pipe. The manufacturer's mark, the year in which the pipe was produced, and the letters "DI" or "DUCTILE" shall be cast or stamped on the pipe.

g. Weighing

- (1) Each pipe shall be weighed before application of lining or coating other than standard coating and the weight shown on the outside or inside of the bell or spigot end.

h. Spigot End of Pipe

- (1) The spigot end of the pipe shall be free of blemishes and defects which, in the opinion of the ENGINEER, might be responsible for a poor fit with the rubber ring gasket and result in leakage.

2. Fittings

a. General

- (1) Ductile iron mechanical joint, restrained joint and fittings shall conform to ANSI/AWWA C110/A21.10 Standard for Gray Iron and Ductile Iron Fittings - 3 inch through 48 inch. Mechanical joints and push on joints shall also conform in all respects to ANSI/AWWA C111/A21.11.
- (2) Ductile iron compact fittings, meeting the requirements of ANSI/AWWA C153/A21.53, will also be accepted.
- (3) Fittings shall be 350 psi pressure rating for sizes through 24-inch and shall be 250 psi rating for sizes above 24 inches unless a higher operating pressure is shown on the Drawings, and in such cases the fitting pressure rating shall be equal to or above the operating pressure. The pressure rating for all compact fittings shall be 350 psi.
- (4) Fittings shall be ductile iron meeting the above requirements and shall be furnished complete with all joint accessories.

b. Lining and Coating

- (1) All fittings shall be lined and coated the same as adjacent pipe.

3. Joints

a. General

- (1) Pipe joints shall be mechanical joint, rubber ring slip joint or restrained joint as shown on the Drawings.
- (2) All items used for jointing pipe shall be furnished with the pipe. The joints shall be made with tools and lubricant in strict conformity with the manufacturer's instructions. Copies of the instructions shall be delivered to the ENGINEER at start of construction in sufficient numbers that will permit the ENGINEER to retain 3 copies.

b. Mechanical Joints

- (1) Mechanical joints are to be furnished according to ANSI/AWWA C111/A21.11. All pipe joints must be furnished complete with all accessories. Mechanical joint bolts and nuts shall be of alloy cast iron or alloy steel (Corten type such as U.S. Alloy) or equal. Rubber gaskets shall be made of plain first grade rubber, free of imperfections and porosity. Hardness shall be 75 ± 5 durometer.

c. Rubber Ring Slip Joint (Push On)

- (1) Rubber ring slip joint shall be equal to ANSI/AWWA C111/A21.11. The joints shall be of the following materials and assembled in the sequence outlined below:
 - (a) Rubber ring gasket compressed in groove in bell of pipe.
 - (b) Beveled spigot end of pipe for initial centering into rubber gasket in bell.

d. Restrained Joints

- (1) For Pipe
 - (a) Restrained joint for push-on type bell with rubber O-ring shall meet the applicable requirements of ANSI/AWWA C 111/A21.11. The bell/spigot configuration for the restrained joint shall be such that restraint shall be provided for the joint based on

a sustained pressure equal to the pressure class of the pipe.

- (b) The restrained joint shall allow the same deflection as standard push-on joint pipe.
- (c) Where field welding is required for restrained field cut pipe, the welder shall be properly instructed in the methods and materials for welding on ductile iron pipe.

(2) For Fittings

- (a) Where restrained joint fittings are called for, the bell configuration for the fittings shall be the same as for the pipe.
- (b) Where fittings with restrained joint bell configuration are not available, restrained materials for use with mechanical joint bell configurations shall be used as follows:
 - (i) Connect mechanical joint bell assemblies with stainless steel all-thread rods.
 - (ii) Install restraints glands on each side of the fitting. The restraining glands shall be "Meg-a-Lug," as manufactured by EBAA Iron Sales, Inc., of Eastland Texas; "Grip Ring," as manufactured by Romac Industries, Inc., of Seattle, Washington; or equal.

4. Lining and Coating

a. Water Service

- (1) All ductile iron pipe for water service shall have manufacturer's standard outside bituminous or asphaltic base coating and a cement lining and bituminous seal coat on the inside. Cement mortar lining and bituminous seal coat inside shall conform to ANSI/AWWA C104/A21.4.

B. Ductile Iron Pipe - Flanged, Grooved, and Special Coupling

1. Pipe

a. Flanged Pipe

- (1) Flanged pipe shall be made in accordance with ANSI/AWWA C115/A21.15 Specifications, and shall be thickness Class 53.
- (2) Where plain ends of flanged and plain end pipe fit into mechanical joint bells, centrifugally cast pipe shall be used.

b. Grooved Pipe

- (1) Where flanged ductile iron pipe is shown on the Drawings, grooved joint piping may be substituted where acceptable to the ENGINEER.
- (2) Grooved joint piping shall conform to ANSI/AWWA Specification C 606.

2. Fittings

a. Flanged Pipe

- (1) Flanged joint fittings shall conform to ANSI/AWWA C110/A21.10 Standard for Gray Iron and Ductile Iron Fittings - 3 inch through 48 inch.
- (2) Fittings shall be 250 psi pressure rating for all sizes unless a higher operating pressure is shown on the Drawings and in such cases the fitting pressure rating shall be equal to or above the operating pressure.
- (3) Fittings shall be ductile iron meeting the above requirements and shall be furnished complete with all joint accessories.

3. Joints

a. General

- (1) Pipe joints shall be as shown on the Drawings.
- (2) All items used for jointing pipe shall be furnished with the pipe. The joints shall be made with tools and lubricant in strict conformity with the manufacturer's instructions. Copies of the instructions shall be delivered to the

ENGINEER at start of construction in sufficient numbers that will permit the ENGINEER to retain 3 copies.

b. Flanged Pipe

- (1) All ductile iron flanged pipe shall have flanges faced and drilled, 125 pound in accordance with ANSI/AWWA C110/A21.10 unless otherwise specified.
- (2) Flanges may be cast integrally with the pipe or they may be screwed on specially designed long hub flanges, refaced across both face of flange and end of pipe.
- (3) Flanged joints are to be furnished according to ANSI/AWWA C115/A21.15 and shall be ductile iron only. Flanged joints shall have 1/8 inch rubber full face gaskets made especially for water pipe use. Bolts for ductile iron flanged pipe must be of standard sizes for pipe to be fitted, and must be black steel, machine bolts with heavy hexagon heads and nuts meeting ANSI B18.2.1 and ANSI B18.2.2, respectively. In unheated vaults, submerged and/or damp locations, bolts and nuts for ductile iron flanged pipe shall be stainless steel. Prior to stainless steel nuts being placed on stainless steel bolts, the bolt threads shall be coated with anti-seize.
 - (a) Bolts and accessories in the membrane building shall be 304/304L stainless steel as this is considered a damp environment.
- (4) The American Toruseal Flange Gasket Manufactured by American Cast Iron Pipe Company is an acceptable alternate to the above described gasket.

c. Grooved Pipe

- (1) Victaulic Style 31 couplings, or equal, with flush seal gaskets shall be used. Rigid cut grooves shall be used except where flexible couplings are shown on the Drawings. In such case, flexible cut grooves shall be substituted.

d. Special Coupling

- (1) Flexible couplings for flanged pipe shall be a mechanical joint cast to a special flanged joint using a neoprene O-ring in place of the usual 1/16 inch rubber ring gasket. The mechanical bell and special flanged joint piece shall be of ductile iron (ANSI/AWWA C110/A21.10) with bolt circle, bolt size and spacing conforming to ANSI/AWWA C110/A21.10 specifications. Mechanical joint follower flange shall be of ductile iron ASTM A 536 or malleable iron ASTM A 47,

Grade 35018 or 32510, with high strength/weight ratio design. Bolts shall be fine grained high tensile malleable iron with malleable iron hexagon nut. Stainless steel bolts and nuts shall be used in vaults, wet wells, and other wet locations. Where pressures may exceed 20 psi, anchor studs shall be included with spigots of pipes connected drilled to receive ends of studs.

- (2) At locations in flanged pipe where adaptors are not shown on the Drawings, the CONTRACTOR may, at his own cost and for flexibility of installation, use a coupling adapter after acceptance by the ENGINEER. In no event shall unrestrained mechanical joints or dresser type couplings be substituted for flanged joints.

4. Lining and Coating

a. Flanged Pipe

- (1) Flanged pipe for water and wastewater service shall be cement lined and bituminous coated the same as written herein for ductile iron pipe, mechanical and rubber slip joint type.
- (2) Flanged pipe for air service shall be as required for water and wastewater service, except the cement lining shall not be provided.

b. Grooved Pipe

- (1) Lining and coating shall be as specified for flanged pipe.

2.02 MATERIALS-PLASTIC PIPE FOR WATER

A. Polyvinyl Chloride (PVC) Pipe (ASTM)

1. Pipe

- a. This Specification covers rigid polyvinyl chloride pipe and fittings, hereinafter called PVC pipe and PVC fittings, for sizes 3/4 inch through 12 inch for use in water and wastewater applications.
- b. PVC pipe shall be extruded from Class 12454-B polyvinyl chloride material with a hydrostatic design stress of 2000 psi for water at 73.4 degrees Fahrenheit, designated as PVC 1120, meeting ASTM Specifications D 1784 for material. Three-fourths inch through 1-1/2 inch water service piping shall be PVC Schedule 40 as specified in ASTM D 1785. Two inch through 12 inch pipe for water and sewage force main service shall be SDR 17 for 250 psi

allowable working pressure at 73.4 degrees Fahrenheit and a safety factor of 2.0, as specified in ASTM D 2241 .

- c. The pipe shall be homogeneous throughout and free from cracks, holes, foreign inclusions or other defects. The pipe shall be as uniform as commercially practical in color.
- d. The workmanship, pipe dimensions and tolerances, outside diameters, wall thickness, eccentricity, sustained pressures, burst pressures, flattening, extrusion quality, marking and all other requirements of ASTM D 2241, NSF 61, and NSF 14 shall be conformed with in all respects.
- e. Pipe shall be furnished in 20 foot lengths. The pipe shall be plain end with bell on one end. Male ends of pipe must be beveled on the outside.
- f. Pipe shall have a ring painted around the male end in such a manner as to allow field checking of setting depth of pipe in the socket. This requirement is made to assist construction superintendents and inspectors in visual inspection of pipe installation.
- g. Pipe must be delivered to job site by means which will adequately support it, and not subject it to undue stresses. In particular, the load shall be so supported that the bottom rows of pipe are not damaged by crushing. Pipe shall be unloaded carefully and strung or stored as close to the final point of placement as is practical.
- h. Pipe must not be exposed to the direct rays of the sun for an extended period of time. If pipe is not to be installed shortly after delivery to the job site, it must be stored in a shaded location.

2. Fittings

a. Ductile Iron

- (1) Ductile iron mechanical joint or push-in type fittings with appropriate adapters may be used with exterior PVC pipe. All such fittings shall be approved by the pipe manufacturer, and complete data sent to the ENGINEER, including the manufacturer's approval, for review.

3. Joints

a. Exterior Buried Pipe - Slip Joint Type

- (1) Exterior buried pipe shall be jointed with slip-type joints with rubber gaskets.

- (2) Pipe with bell end shall have all parts of the bell, including the gasket groove, made from the same extruded piece, integral with the pipe, and shall be thickened to meet standard dimension ratios of wall thickness to outside diameter. The gasket groove shall be constructed such that gasket rollout will not occur. Rubber gasketing shall conform to ASTM D 3139.

b. Couplings

- (1) Couplings shall be of the same material as the pipe and may be of the molded, or extruded type. They shall have a beveled entrance to prevent the wiping off of the lubricant from the male end of the pipe.
- (2) PVC couplings shall have a minimum rating of 200 psi for continuous operation at 73.4 degrees Fahrenheit.
- (3) The couplings shall have a positive pipe stop that will automatically and accurately position the pipe ends within the couplings. The pipe stop shall also permit the thermal expansion or contraction of the pipe ends.

B. Polyethylene Pipe for Water Mains

1. Pipe

a. General

- (1) Polyethylene pipe and fittings shall comply with the requirements of ASTM D 1248, D 1505, D 1693, D 1928, D 2657, D 3035, D 2837 and D 2321.

b. Resins

- (1) Only virgin polyethylene resins classified as Type III, Category 5, Grade P34 per ASTM D 3035 with densities of 0.955 p/cc maximum and melt index of 0.15 g/10 minutes maximum shall be used in the process of making the pipe. The resin shall contain antioxidants and be stabilized with carbon black.

c. Design

- (1) The pipe shall have a long-term strength rating of 1,600 psi or more and be resistant to environmental stress cracking per procedure C of ASTM D 1928 for not less than 200 hours. The maximum allowable deflection is 5 percent with the pipe installed in accordance with these Specifications, using backfill material at 130 pounds per cubic foot, H-20

live load plus 50 percent impact but no internal pressure. The live load and impact may be disregarded in the calculations for trench conditions with 8 feet or more cover. Operating pressures are shown on the Drawings. Hydrostatic loading shall be considered when the pipe is to be installed below a permanent water table or body of water.

d. Wall Thickness Calculations

- (1) The pipe manufacturer shall furnish calculations to support the pipe wall thickness for these various conditions for the ENGINEER'S review/acceptance before the materials are sent to the job site.

e. Quality

- (1) No cracks, holes, foreign material, blisters or other deleterious faults are permitted in the polyethylene pipe. It shall be homogeneous throughout including the heat fused joint. Polyethylene pipe will not be installed containing gouges or cuts that penetrate more than 10 percent of the wall thickness.

f. Water Stops

- (1) The pipe manufacturer shall furnish a water-stop assembly for use with the pipe where the pipe passes through a structure wall so as to provide a watertight seal. The assembly shall be attached to the pipe with non-corroding materials.

g. Marking

- (1) Each length of polyethylene pipe shall contain the manufacturer's brand name, pipe size and other data to enable an accurate tracing of the raw material source. Polyethylene pipe will not be installed containing gouges or cuts that penetrate more than 10 percent of the wall thickness.

2. Joints

a. Fusion

- (1) Polyethylene pipe shall be joined by the heat fusion welding process. Welding equipment may be either gas fired or electric as the CONTRACTOR may select. The welding equipment must be capable of attaining the temperature

recommended by the manufacturer for the particular polyethylene extrusion used on the project.

- (2) The fusion equipment shall have hydraulic controls and gauges for monitoring fusion pressures. Also, an engine powered facing unit to trim the irregularities of the pipe ends shall be provided. The heated and thermostatically controlled plate shall contain a temperature gauge for monitoring the heat temperature throughout the fusion process.

b. Flange Adapters

- (1) Threaded or solvent weld joints and connections are not permitted. Flange adapters as manufactured by the pipe supplier shall be used, butt-fused to the pipe and connected to other pipe material using a rubber gasket for sealing.

2.03 MATERIALS-SERVICE LINE PIPE

A. Copper Pipe and Fittings

1. Inside, Rigid with Solder Joint Connections

- a. Small piping inside structures shall consist of standard copper tubing for water; Type "L" for general plumbing purposes. All fittings shall be "solder joint connection" cast or wrought bronze for water service for inside diameter of pipe sizes given. All stops, valves, hose bibbs, and unions shall be made with same joints or threaded iron pipe standard, and be of brass or copper. Use 95-5 tin-antimony solder for "solder joints."
- b. Buried Copper Tubing with Compression Joints
 - (1) Small copper piping for buried service shall be of standard soft copper tubing for water service pipe, ASTM Specifications B 88, Type "K," with bronze fittings, stops, and valves having compression connections for flared copper tubing.

B. Polyethylene Pipe for Water Service

1. Pipe

- a. Polyethylene flexible pipe (I.P.O.D. or PVC O.D.) for sizes 2 inch through 3 inch water service piping shall be PE 4710, with a cell classification of PE 445474C or better, DR-11, OD based for 200 psi working pressure at 73.4 degrees Fahrenheit, meeting ASTM Specification D 1248 for material, D 3350 for cell classification and AWWA C901 Specification for pipe.

- b. Pipe shall meet all applicable provisions of the Commercial Standards and shall bear the National Sanitation Foundation (NSF) seal of approval.
2. Fittings
 - a. Fittings shall be standard bronze fittings as specified for copper tubing in this Section of these Specifications.

2.04 SOURCE QUALITY CONTROL

A. Ductile Iron Pipe (Mechanical Joint and Rubber Slip Joint Type)

1. Hydrostatic and physical properties acceptance tests shall be in accordance with ANSI/AWWA Specification C151/A21.51 for ductile iron pipe centrifugally cast in metal molds or sand lined molds for water or other liquids.
2. The ENGINEER shall be provided with sufficient copies of each of the tests for each Contract to permit the ENGINEER to retain 3 copies.
3. All items used for jointing pipe shall be tested before shipment.

B. Polyvinyl Chloride (PVC) and Chlorinated Polyvinyl Chloride (CPVC) Pipe (ASTM)

1. Samples of pipe and physical and chemical data sheets shall be submitted to the ENGINEER for review and acceptance before pipe is delivered to job.
2. Samples of solvents and the recommended instruction for their use must be submitted for the ENGINEER'S review and acceptance before delivery of solvent to the job.

PART 3 EXECUTION

3.01 TRENCH EXCAVATION-PRESSURE PIPE

A. General

1. Trenching shall include all clearing and grubbing, including all weeds, briars, trees and stumps encountered in the trenching, regardless of size. The CONTRACTOR shall dispose of any such material by burning, burial or hauling away or as noted on the Drawings, at no extra cost to the OWNER. Ornamental shrubs, hedges and small trees (3 inches in diameter or less) shall be removed, protected and replanted, at no extra cost to the OWNER.
2. Trenching also includes such items as railroad, street, road, sidewalk, pipe and small creek crossings; cutting, moving or repairing damage to

fences, poles or gates and other surface structures, regardless of whether shown on the Drawings. The CONTRACTOR shall protect existing facilities against danger or damage while pipeline is being constructed and backfilled or from damage due to settlement of the backfill.

3. Materials encountered in excavation will be divided into 2 classes only: solid rock excavation and other materials. Solid rock excavation is defined as material requiring the use of specialty equipment for removal, such as "hoe ramming," or the use of explosive materials for breakage prior to removal. Other materials shall include earth, loose rock, street or road surfacing and base concrete, and boulders less than 1/3 cubic yard in one piece.
4. In case of "unclassified excavation," as designated in the Drawings and/or Specifications, the price bid shall include earth, solid rock, roots, street or road surfacing and base concrete and boulders.
5. All excavation shall be open trenches, except where the Drawings call for tunneling, boring or jacking under structures, railroads, sidewalks, roads or highways.

B. Trees and Shrubs

1. Where pipelines run through wooded terrain, cutting of trees within limits of maximum permissible trench widths, as set forth in this article, will be permitted. However, cutting of additional trees on sides of trench to accommodate operating of trenching machine will not be permitted. The CONTRACTOR shall obtain specific permission of the OWNER before cutting any tree larger than 4 inches in diameter.

C. Highways and Streets

1. Construction equipment injurious to paving encountered shall not be used. Curbs, sidewalks, and other structures shall be protected by the CONTRACTOR from damage by his construction equipment.
2. Where trenching is cut through paving which does not crumble on edges, trench edge shall be cut to at least 2 inches deep to straight and neat edges, before excavation is started, and care taken to preserve the edge to facilitate neat repaving.
3. The CONTRACTOR shall so coordinate his work as to produce a minimum of interference with normal traffic on highways and streets. He may, with the approval of the governing agency, close a street to traffic for such length of time considered necessary, provided persons occupying property abutting the street have an alternate route of access to the property which is suitable for their needs during the time of closure. It shall be the responsibility of the CONTRACTOR to give 24 hours advance notice to fire and police departments and to occupants of a street which will be closed, in a manner approved by the governing body.

4. The CONTRACTOR shall maintain road crossings in a passable condition for traffic until the final acceptance of the work.
5. Highway Department requirements in regard to trenching, tunneling, boring and jacking shall take precedence over the foregoing general specifications and the tunneling and boring or jacking specifications, where they are involved.
6. Uneven surfaces or humps in the ground encountered and high driveways and road crossings shall be dug through to such depth that pipe may be laid to a reasonably even grade and have minimum cover at the low places. Such places requiring extra depths shall be included in the bid and no extra payment will be made for such extra depths required, which are evident from an examination of the ground before bidding, as required for 1 foot cover over valve nuts, or are indicated on the Drawings.

D. Existing Utilities

1. The CONTRACTOR shall determine, as far as possible in advance, the location of all existing sewer, culvert, drain, water, electric, telephone conduits, and gas pipes, and other subsurface structures and avoid disturbing same in opening his trenches. In case of sewer, water and gas services and other facilities easily damaged by machine trenching, same shall be uncovered without damage ahead of trenching machine and left intact or removed without permanent damage ahead of trenching and restored immediately after trenching machine has passed, without extra cost to the OWNER. The CONTRACTOR shall protect such existing facilities, including power and telephone poles and guy wires, against danger or damage while pipeline is being constructed and backfilled, or from damage due to settlement of his backfill. It shall be the responsibility of the CONTRACTOR to inform the customers of utilities of disruption of any utility service as soon as it is known that it has been or will be cut off.
2. The CONTRACTOR shall, at all times during trenching operations, carry a stock of pipe and fittings likely to be needed for replacement of pipelines to facilitate immediate repair.

E. Pipelines in Same Trench

1. Pipelines, force mains, and sewers laid in same trench shall, in all cases, be bedded on original earth, or other specified bedding materials, regardless of divergence in their elevations, unless otherwise specified. They shall never be laid in unsupported backfill or one above the other.

F. Location of Proposed Pipelines

1. The location of pipelines and their appurtenances as shown are those intended for the final construction. However, conditions may present themselves before construction on any line is started that would indicate desirable changes in location. Also, development of property traversed may require location changes. In such cases, the OWNER reserves the right to make reasonable changes in line and structure locations without extra cost, except as may be determined by the application of the unit prices bid or as otherwise agreed upon to the quantities actually involved. The OWNER is under no obligation to locate pipelines so that they may be excavated by machine.

G. Trench Requirements

1. All trenches must be dug neatly to lines and grades.
2. The opening of more than 500 feet of trench ahead of pipe laying and more than 500 feet of open ditch left behind pipe laying, before backfilling, will not be permitted, except upon written consent of the OWNER. No trench shall be left open or work stopped on same for a considerable length of time. In case of objectionable delay trench shall be refilled according to backfill specifications.
3. Where subgrade of trench has insufficient stability to support the pipeline and hold it to its original grade, the ENGINEER may order stabilization by various means. Exclusive of dewatering normally required for construction and instability caused by neglect of the CONTRACTOR, it shall be paid for at unit prices set up in the Contract, such as extra excavation, crushed rock for pipe bedding, concrete cradle or piling.
4. Excavation for pipe laying must be made of sufficient width to allow for proper jointing and alignment of the pipe, but not greater than the maximums permitted in the following table:

MAXIMUM TRENCH WIDTH AT TOP OF PIPE

<u>Nominal Pipe Size</u> (Ins.)	<u>Trench Width</u> (Ins.)	<u>Nominal Pipe Size</u> (Ins.)	<u>Trench Width</u> (Ins.)
4	28	14	38
6	30	16	40
8	32	18	42
10	34	20	44
12	36	24	48

5. Trenches in earth or rock shall be dug as shown on the Drawings and be sufficiently deep to insure a 30 inch or 36 inch minimum cover over water lines and force mains, as noted on the Drawings. Depths of trenching

shall also be adequate for at least 1 foot minimum cover over valve nuts. In order to eliminate the necessity for digging bell holes into the trench subgrade by hand and to insure an earth cushion under the pipe for uniform bearing, trench depth shall be the cover requirement plus outside diameter of barrel of pipe plus the required bedding cushion. The cushion construction requirement shall also apply to tunnels.

6. Wherever it is deemed necessary by the ENGINEER to lay the pipes to an extra depth exceeding the depths required by the Drawings and Specifications and not apparent from unevenness of ground, the CONTRACTOR will be paid for such excavation under extra excavation in earth at the price bid per cubic yard, computed on the basis of maximum trench widths in the preceding table. In unclassified excavation contracts the same width limitations will apply.
7. Trench line stations and locations of accessories will be set ahead of the trenching. These will be set at least each 100 feet of pipeline. Trenches must be dug true to alignment of stakes. Alignment of trenches or pipes in trench must not be changed to pass around obstacles such as poles, fences and other evident obstructions without the permission of the ENGINEER. Lines will be laid out to avoid obstacles as far as possible, contingent with maintenance of alignment necessary to finding pipeline in the future and avoiding obstruction to future utilities.

H. Damage to Existing Structures

1. Hand trenching is required, at no extra payment, where undue damage would be caused to existing structures and facilities by machine trenching.
2. In case of damage to any existing structures, repair and restoration shall be made at once and backfill shall not be replaced until this is done. In all cases, restoration and repair shall be such that the damaged structure will be in as good condition and serve its purpose as completely as before, and such restoration and repair shall be done without extra charge, except as set forth under the applicable provisions of the General and Special Conditions. Where there is the possibility of damage to existing utility lines by trenching machine, the CONTRACTOR shall make hand search excavation ahead of machine trenching, to uncover same, at no extra cost to the OWNER.

I. Excavation Unclassified

1. Excavation for pipelines shall be unclassified and the cost of all excavation of whatever nature and state, including solid rock, shall be included in the CONTRACTOR'S lump sum bid.

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2. Excavation for structures such as manholes, pump stations, and vaults is likewise unclassified and the cost of all excavation of whatever nature and state, including solid rock, shall be included in the CONTRACTOR'S lump sum bid.

J. Dewatering of Trenches

1. Dewatering of trenches shall be considered a part of trenching, at no extra cost to the OWNER. Dewatering of trenches shall include groundwater and storm or sanitary sewage. Suitable pumping and other dewatering equipment is to be provided by the CONTRACTOR, to insure the installation of the pipeline structure in a dewatered trench and under the proper conditions. Dewatering shall include all practical means available for prevention of surface runoff into trenches and scouring against newly laid pipe.
2. Piles of excavated materials shall be trenched or temporarily piped to prevent, as far as practical, blockage of drainage ditches and gutters, and water carriage of excavated materials over street and highway surfaces.

3.02 LAYING PRESSURE PIPE

A. General

1. Inspection of Materials
 - a. All pipe, fittings and accessories shall be subject to an inspection by the OWNER at the job site. Any damaged materials shall be repaired or replaced to the satisfaction of the OWNER. Should repairs to the piping materials be necessary, then same shall be made in the presence of the ENGINEER using proven methods prescribed by the pipe manufacturer.
 - b. The OWNER'S inspection of materials shall in no way relieve the CONTRACTOR of his responsibility.
2. Laying Requirements
 - a. Pressure pipe shall be laid to lines, cover or grades shown on the Drawings.
 - b. Pipes must be swabbed out before lowering into trench. In the case of pipelines 4 inch through 20 inch, a swab must also be dragged through the pipe after it is in place. Larger size pipe shall be visually inspected for cleanliness and proper jointing.
 - c. The points insisted upon in the laying of pipe will be: Proper alignment, evenness of width and depth of joints, perfection in jointing, and care of the pipe in handling. For air and gas lines proper locking and wrapping, electrical inspection, and blow-down

(purging of air in case of gas lines) of pipe are also essential and will be required.

- d. Precautions must be taken to prevent flotation of the pipe should water enter the trench prior to putting the pipeline into operation.
- e. In wet, yielding and mucky locations where pipe is in danger of sinking below grade or floating out of grade or alignment, or where the backfill materials are of such a fluid nature that such movements of the pipe might take place during the placing of the backfill, the pipe must be weighted or secured permanently in place by such means as will prove effective. If crushed rock fill beneath the pipe is necessary for stability, it will be paid for at the unit price bid per ton or by the agreed upon price of such material in place except in cases where instability is caused by neglect of the CONTRACTOR.
- f. Whenever pipe laying is stopped, the end of the pipe shall be securely plugged with the manufacturer's standard plug held in place by bracing and/or blocking. For air or gas lines, or expandable pipe plug, or similar conical plug, held in place by proper bracing or backing is required.
- g. Elbows, plugs, dead end valves, and tees shall be firmly blocked, as shown on the Drawings, to prevent internal pressure from springing the pipe from the intended alignment, with permanent materials solidly placed without covering pipe joints. Restrained type pipe joints may be substituted for thrust blocks with the ENGINEER'S permission. Pipe shall be free of all structures, other than manholes, vaults or planned entries into other structures.
- h. No pipe shall be laid resting on solid rock, blocking or other unyielding objects. Jointing before placing in the trench and subsequent lowering of more than one section jointed together may be allowed, subject to the ENGINEER'S permission.
- i. For PVC and polyethylene pipe, there shall be installed with the pipe #12 AWG insulated wire for the entire length of the pipeline. The wire shall be installed on top of the 12-inch initial backfill and weighted at locations along the wire sufficient to prevent dislodgement during the backfilling process. The wire shall be accessible at valve boxes or at locator stations along the route of the pipeline, as shown on the Drawings.
- j. Fiberglass line markers shall be installed at valve locations or at locations as shown on the Drawings. Fiberglass markers shall be Carsonite Utility Marker, Style No. 375, or approved equal. Markers shall be equipped with the OWNER'S standard logo.

3. Installing Water Pipe in Cover Pipe

- a. Installation of water pipe in cover pipe is covered in Section 02326 of these specifications.

B. Laying Ductile Iron Pipe

1. Bedding and Backfilling

- a. The laying condition shall be Type 3 specified in ANSI/AWWA C600. The pipe shall be bedded in 4 inches minimum loose soil and the hand placed loose soil backfill lightly consolidated to the top of the pipe. "Loose soil" or "select material" is defined as native soil excavated from the trench, free of rocks, foreign materials and frozen earth.
- b. The selected material shall be hand placed to a point 12 inches above the barrel of the pipe. After the specified backfill is hand placed, rock may be used in machine placed backfill in pieces no larger than 8 inches in any dimension and to an extent not greater than one-half the volume of the backfill materials used.
- c. The top 12 inches of backfill shall contain no rock over 1-1/2 inches in diameter nor pockets of crushed rock.
- d. Larger rock fill will be allowed in wide trenches where side slopes are low enough to prevent rock from dropping over pipeline. If additional earth is required, it must be obtained and placed by the CONTRACTOR. Filling with rock and earth shall proceed simultaneously, in order that all voids be filled with earth.
- e. If select material is not available from the trench excavation, or if the CONTRACTOR so desires, he may use crushed stone bedding and backfill to the top of the pipe at no extra cost to the OWNER.
- f. Sufficient space, limited to a maximum of 2 feet length, shall be left out of the specified earth or crushed stone bedding to facilitate proper jointing of the pipe.

2. Installation of Pipe

- a. Ductile iron pipe shall first be thoroughly cleaned at joints, then joined according to instructions and with tools recommended by the pipe manufacturer. Sufficient copies of the manufacturer's installation instructions shall be furnished the ENGINEER to permit the ENGINEER to retain 3 copies. One copy shall be available at all times at the site of the work.
- b. All pipes must be forced and held together or "homed" at the joints before bolting. Pipe must be aligned as each joint is placed,

so as to present as nearly true, straight lines and grades as practical, and all curves and changes in grades must be laid in such manner that one-half of the maximum allowable deflection shown in the pipe manufacturer's catalog is not exceeded.

- c. Concrete blocking of fittings shall be as specified hereinafter in this Specification Section 02610.
- d. Cutting of pipe may be done by special pipe cutters as the CONTRACTOR may elect, but the CONTRACTOR will be held responsible for breakage or damage caused by careless cutting or handling. Cut edges of the pipe shall be made smooth and a bevel formed on the exterior of the pipe barrel when using rubber gasket type pipe.

C. Laying Copper Pipe and Fittings

1. Bedding and Backfilling

- a. The pipe shall be bedded in 4 inches minimum of loose soil and the hand placed backfill lightly consolidated to a depth of 12 inches above the top of the pipe. "Loose soil" or "select material" is defined as native soil excavated from the trench, free of rocks, foreign materials and frozen earth. The machine placed backfill may contain rock no larger than 8 inches in any dimension and to an extent no greater than 2 the volume of backfill materials used. The top 12 inches of backfill shall contain no rocks over 1-1/2 inches in diameter nor pockets of crushed rock.

2. Installing Copper Pipe and Fittings

- a. Exterior copper pipe shall be laid of type K pipe, with brass compression fittings. Joints shall be neatly reamed and flared and joints drawn up firmly. Pipe shall have at least 30 inch cover. Joints shall be tested and all leakage stopped before backfilling the pipe trench.
- b. Interior copper pipe shall be installed of Type L pipe, with sweat joint fittings. Pipe shall be tested and all leaks stopped before the system will be accepted. The pipe shall be free of dents and bends. The sweat joints shall present a neat appearance. All pipe shall be parallel to walls and floors with unions on all runs and branches. The pipe shall be secured to the walls and ceilings by clamps and hangers manufactured for the purpose. Strap hangers are not acceptable. Unions and valves shall be placed on each outlet to facilitate dismantling and shutting off.
- c. All copper pipe shall be installed by experienced workmen.

D. Installation of Flanged or Threaded Pipe and Fittings (Interior)

1. Installation - General

- a. The CONTRACTOR shall thoroughly clean the pipe and fittings before starting erection. All scale, rust and dirt shall be removed by power brushing and/or solvent cleaning.
- b. The erection of piping requires that it progress from the equipment it is connected to, after the equipment has been accurately leveled and aligned, without putting a strain on same. The pipe shall be erected in a workmanlike manner with runs in the true horizontal or vertical plane or as shown on the Drawings.
- c. The piping shall be supported by standard pipe hangers or piers rather than by the equipment. The pipe shall be free of all openings in walls and slabs when the final position of the piping is attained and before sealing the annular space about the pipe.

2. Flanged Joint Connection

- a. All flanged type connections shall be made using an acceptable gasket and bolts. The bolts shall be tightened evenly to compress the gasket. Care is to be taken not to distort the flanges and/or piping by overtightening the bolts. Final tightening of bolts shall be done with a properly adjusted torque wrench.

3. Threaded Joint Connection

- a. All threads shall be full, complete and made with sharp dies. The ends of the pipe shall be reamed to remove all burrs and all threads must be free of rust and other foreign matter at the time the joint compound is applied. Joint thread compounds must be acceptable to the ENGINEER before use.
- b. Pipe threads shall be tapered and in accordance with API Standard 5B. Not more than 3 threads at each joint may be exposed after the connection is made.
- c. Unions shall be included to allow for proper assembly and disassembly of each run of pipe. Provide a union on each run of pipe connecting to threaded valves, devices and equipment.

4. Interface with Other Products

- a. When a pipe transitions from ductile iron to pipe of another material, a transition fitting shall be used. The transition material shall be a dielectric material or insulator. For pressure applications above 20 psi the transition fitting shall be a Straub pipe joint, a Dresser type coupling, or equal. For low pressure or gravity

applications, the transition fitting shall be a Straub pipe joint, a Dresser type coupling, a Fernco fitting, or equal. All transition couplings shall be approved by the ENGINEER prior to installation.

E. Laying Plastic Pipe

1. Bedding and Backfill

- a. The pipe shall be bedded in 4 inches minimum depth (for pipe sizes through 16 inches) of "loose soil" or "select material" meeting the requirements of Class II or III of ASTM D 2321. For pipe sizes greater than 16 inches in diameter, the pipe bedding shall be a minimum depth of one-fourth the pipe diameter or 6 inches minimum.
- b. Similar material shall be used for haunching up to the spring line of the pipe and it shall be worked under the haunch of the pipe to provide adequate side support. The same material shall then be hand placed to a point 12 inches above the top of the pipe.
- c. After the placement of each lift of the Class II or III bedding, haunching and initial backfill material, the material shall be compacted to 85 percent and/or 90 percent Standard Proctor Density, respectively.
- d. The remaining backfill, except for the top 12 inches which shall contain no rock over 1-1/2 inch diameter nor pockets of crushed rock, may be excavated material containing no rock over 8 inches in any dimension. Larger rock will be allowed in wide trenches where side slopes are low enough to prevent rock from dropping over pipeline. If additional earth is required, it must be obtained and placed by the CONTRACTOR. Filling with rock and earth shall proceed simultaneously, in order that all voids may be filled with earth.
- e. In trenches in solid rock or where flowing water is present, crushed stone bedding and backfill to 12 inches above the top of the pipe shall be substituted for the select material. Kentucky Department of Highways No. 9 stone shall be used for pipe up to 16 inches in diameter.
- f. If select material is not available from the trench excavation, or if the CONTRACTOR so desires, he may use crushed stone bedding and backfill to a point 12 inches above the top of the pipe at no extra cost to the OWNER.
- g. Sufficient space, limited to a maximum of 2 feet length, shall be left out of the bedding to facilitate proper jointing of the pipe.

- h. No pipe shall be laid resting on solid rock, blocking, or other unyielding objects. Jointing before placing in the trench and subsequent lowering of more than one section may be allowed subject to the ENGINEER'S permission.
 - 2. Installation of Polyvinyl Chloride (PVC) and Chlorinated Polyvinyl Chlorine (CPVC) Pressure Pipe
 - a. Prior to laying, all PVC pipe shall be stored in a shaded place for protection from the direct rays of the sun. Pipe shall be distributed from storage as the work progresses as permitted by the ENGINEER.
 - b. The pipe, fittings, and valves shall be placed in the trench with care. Under no circumstances shall pipe or other materials be dropped or dumped into the trench. The pipe shall not be dragged in a manner which would cause scratching of the pipe surface. An excessive amount of scratching on the surface of the pipe will be considered cause for rejection.
 - c. Sufficient copies of the pipe manufacturer's instructions for installing the pipe and accessories shall be furnished the ENGINEER by the CONTRACTOR to permit the ENGINEER to retain 3 copies. A copy is to be available at the job site at all times.
 - d. Concrete blocking of fittings, as hereinafter specified, shall be required for PVC pipe with slip joints and rubber gaskets.
 - e. All dirt, dust and moisture shall be removed from the bell and spigot ends of pipes to be jointed. Insert gasket in bell. Apply the lubricant to spigot and gasket being careful to keep both ends free of dirt. The joint shall be homed to stop mark on spigot end of pipe. All jointing shall be done in accordance with pipe manufacturer's recommendations.
 - f. All cutting of the pipe shall be done in a neat and workmanlike manner with the least amount of waste of pipe involved and without damage to existing or new lines. A fine tooth saw, tubing cutter or similar tool can be used to cut the pipe. Cut must be square and ragged edges removed with a cutting tool and/or file. A bevel or taper on the exterior of each spigot is required.
- 3. Installing Polyethylene Pipe for Water or Chemical Service
 - a. The pipe shall be bedded in 4 inches minimum of loose soil and the hand placed backfill lightly consolidated to a depth of 12 inches above the top of the pipe. "Loose soil" or "select material" is defined as native soil excavated from the trench, free of rocks, foreign materials and frozen earth. The machine placed backfill may contain rock no larger than 8 inches in any dimension and to

an extent no greater than 2 the volume of backfill materials used. The top 12 inches of backfill shall contain no rocks over 1-1/2 inches in diameter nor pockets of crushed rock.

- b. Polyethylene pipe for water services shall have the same outside diameter as copper tubing and shall be compatible for flared compression fittings. The joints to brass fittings shall be made by cutting the pipe with a tube cutter, keeping it clean and square, thence flaring the pipe and completing the joining in accordance with the manufacturer's instructions (a copy of the instructions shall be at the job site at all times). All joints shall be tested and all leakage stopped before backfilling the pipe trench.
- c. The pipe shall be snaked into the trench, employing the natural snaking tendency of the pipe. All short radius bends shall be made with fittings rather than with the pipe alone. The pipe shall be bent to a radius of not less than 12 inches.
- d. The pipe will be rejected if it contains kinks and gouges.

F. Installation of PVC and CPVC Pipe and Fittings (Interior)

1. Installation-General

- a. The CONTRACTOR shall thoroughly clean the pipe and fittings before starting erection. All burrs, rough edges, and dirt shall be removed as recommended by the pipe and fitting manufacturer.
- b. The erection of piping requires that it progress from the equipment it is connected to, after the equipment has been accurately leveled and aligned, without putting a strain on same. The pipe shall be erected in a workmanlike manner with runs in the true horizontal or vertical plane or as shown on the Drawings.
- c. The piping shall be supported by standard pipe hangers or piers rather than by the equipment. The pipe shall be free of all openings in walls and slabs when the final position of the piping is attained and before sealing the annular space about the pipe.
- d. The pipe and fitting manufacturer's recommended installation instruction shall be strictly followed. Pipe support spacing shall be as specified in Division 15 of these Specifications.

2. Flanged Joint Connection

- a. All flanged type connections shall be made using an acceptable gasket and bolts. The bolts shall be tightened evenly to compress the gasket. Care is to be taken not to distort the flanges and/or piping by overtightening the bolts. Final tightening of bolts shall be done with a properly adjusted torque wrench.

3. Threaded Joint (Union) Connection

- a. All threads shall be full, complete and made with sharp dies. The ends of the pipe shall be reamed to remove all burrs and all threads must be free of rust and other foreign matter at the time the joint compound is applied. Joint thread compounds must be acceptable to the ENGINEER before use.
- b. Pipe threads shall be tapered. Not more than 3 threads at each joint may be exposed after the connection is made.
- c. Unions shall be included to allow for proper assembly and disassembly of each run of pipe. Provide a union on each run of pipe connecting to threaded valves, devices and equipment.

4. Interface with Other Products

- a. When a pipe transitions from plastic to pipe of another material, a transition fitting shall be used. For pressure applications above 20 psi the transition fitting shall be a Straub pipe joint, a Dresser type coupling, or equal. For low pressure or gravity applications, the transition fitting shall be a Straub pipe joint, a Dresser type coupling, a Fernco fitting, or equal. All transition couplings shall be approved by the ENGINEER prior to installation.

G. Installation of Water Service Accessories

1. Water Service Meters

- a. Water service meters and accessories shall be installed as shown on the Drawings, with meter box centered over the meter where appropriate.

2. Corporation Stops

- a. Corporation stops, as shown on the Drawings, are required between the water main and the meter, and between the main and the air valve assembly.

H. Blocking of Pipe at Bends and Ends

1. Horizontal Bends

- a. Concrete backing and/or blocking required at bends in the horizontal plane shall be accomplished per detail on the Drawings. The square footage of blocking area shall be obtained from Tables "A" and "B" through the following procedure:

Step No. 1 - From Table "A," select type soil and bearing area factor for particular fitting to be blocked.

Step No. 2 - From Table "B," select multiplier to be used for the size pipe being blocked and its test pressure.

Step No. 3 - Calculate actual bearing area required by multiplying bearing area factor from Table "A" by multiplier from Table "B" (e.g. - 16 inch tee with 250 psi test pressure in sandy clay - $9.42 \times 1.78 = 16.7$ S.F. of bearing area required). Bearing area shall in no case be less than the minimum shown in Table "B."

TABLE "A"

Type Soil	Soil Bearing Pressure (PSF)	Bearing Area Factor for Degree of Bend (Square Feet)				
		90°	Plug/Tee	45°	22 1/2°	11 1/4°
Sandy Clay	3,000	13.33	9.42	7.21	3.68	1.85
Hard Clay	6,000	6.66	4.71	3.61	1.84	0.92
Shale	12,000	3.33	2.36	1.80	0.92	0.46
Solid Rock	16,000	2.50	1.77	1.35	0.69	0.35

TABLE "B"

Pipe Dia. (In.)	Min. Bearing Area (S.F.)	Multiplier for Pipe Test Pressure (TP)						
		(TP) 350 psi	(TP) 300 psi	(TP) 250 psi	(TP) 200 psi	(TP) 150 psi	(TP) 100 psi	(TP) 50 psi
4	1.0	0.16	0.13	0.11	0.09	0.07	0.04	0.02
6	1.0	0.35	0.30	0.25	0.20	0.15	0.10	0.05
8	1.0	0.62	0.53	0.44	0.36	0.27	0.18	0.09
10	1.0	0.97	0.83	0.69	0.56	0.42	0.28	0.14
12	1.3	1.40	1.20	1.00	0.80	0.60	0.40	0.20
14	1.5	1.91	1.63	1.36	1.09	0.82	0.54	0.27
16	1.8	2.49	2.13	1.78	1.42	1.07	0.71	0.36
18	2.3	3.15	2.70	2.25	1.80	1.35	0.90	0.45
20	2.5	3.89	3.33	2.78	2.22	1.67	1.11	0.56
24	3.6	5.60	4.80	4.00	3.20	2.40	1.60	0.80

- b. Consideration will be given to the use of restrained type mechanical joint pipe and fittings in lieu of concrete blocking. Use of the restrained joint pipe and fittings is subject to review and acceptance by the ENGINEER of the locking-method and adequacy of design for pressures involved.

2. Vertical Bends

- a. The use of vertical bends in lieu of extra depth trenching shall be subject to permission by the ENGINEER.
- b. Where the CONTRACTOR elects to use vertical bends, or where vertical bends are called for on the Drawings, the CONTRACTOR shall submit the blocking design, including calculations, to the ENGINEER for review and acceptance. Anchorages shall be designed to resist thrusts caused by the internal test pressure in the pipe. Protection against corrosion shall be inherent in the design.

J. Supplemental Backfilling Information

1. General

- a. Excavated materials from trenches, tunnels, and structure excavation in excess of quantity required for trench backfill or site regrade, shall be disposed of by the CONTRACTOR. It shall be the responsibility of the CONTRACTOR to obtain location or permits for its disposal. The cost for trench excavation, backfill, site excavation, regrade, disposition of excess excavated materials, and hauling shall be included in the lump sum bid.
- b. Where sod is destroyed in areas maintained equivalent to residence yards, it shall be replaced on slightly ridged backfill on trench, and where destroyed in areas adjacent to the trench, it shall be replaced by the CONTRACTOR with fresh sod, all of which shall be included in the lump sum bid. The timing of resodding shall be controlled by the ENGINEER. Ground shall be prepared and fertilized as herewith specified for seeded areas. In small patches, supplying of 3 inches of topsoil and raking may be substituted for disking.
- c. Where pastures, thin grass or cover crops are destroyed by trenching, laying, backfilling, or tunneling operations, surface shall be prepared by disking, fertilizing, and seeding, as specified in Section 02930. Seeding and fertilizing shall be included in the lump sum bid. The timing of this operation shall be controlled by the ENGINEER. Requirements of the Department of Highways for reseeding shall take precedence over these Specifications where they are involved.
- d. No extra charge shall be made for backfilling of any kind, except as specified. Backfilling shall be included in the lump sum bid. No extra charge shall be made for supplying outside materials for backfill except where fills above existing ground are necessary and payment is designated on Drawings or in Specifications. If backfilling of the trench or surface restoration is not properly

completed, a proportionate part of the lump sum bid shall be retained from payment estimates.

- e. Before completion of the Contract, all backfills shall be reshaped, holes filled, and surplus materials hauled away and all permanent walks, street, driveways, and highway paving and sod replacement (if such surface replacement items are included in the Contract) and reseeding performed.
- f. Backfill material must be uniformly ridged over trench, and excess hauled away. Ridged backfill shall be confined to the width of the trench and not allowed to overlap onto firm original earth, and its height shall not be in excess of needs for replacement of settlement of backfill.
- g. All rock, including crushed rock or gravel from construction, must be removed from yards and fields. Streets and walks shall be broomed to remove all earth and loose rock immediately following backfilling.

2. Special Requirements

- a. In case of street, highway, sidewalk and driveway crossings or within any roadway paving, or about manholes, valve and meter boxes located in such paving, the following backfill material and procedure is required.
- b. The pipe shall be bedded in 4 inches minimum depth (for pipe sizes through 16 inches) of crushed rock meeting the requirements of the Kentucky Department of Highways standard size No. 9. For pipe sizes greater than 16 inches in diameter, the pipe bedding shall be a minimum depth of 1/4 the pipe diameter and be of the material and gradation specified previously.
- c. Similar material shall be used for haunching up to the spring line of the pipe, and it shall be worked under the haunch of the pipe to provide adequate side support. The crushed rock shall then be hand placed to a point 12 inches above the top of the pipe.
- d. After the above bedding and selected backfill have been placed, fill trench to within 6 inches of the surface with Kentucky Department of Highways No. 57 crushed stone, uniformly distributed, or other gradation acceptable to the ENGINEER. In order to accommodate compacted temporary surfacing it may be necessary to bulkhead or otherwise confine the stone fill at the open end of the trench.
- e. Temporary surfacing of street, highway, sidewalk and driveway crossings, or within any roadway paving, or about manholes, valve and meter boxes located in such paving, shall consist of 6 inches compacted dense graded aggregate as specified under Section

02235 for temporary walkway or road surfacing, placed and compacted in the trench. Compaction shall be accomplished by methods which shall be sufficient to confine stone to the trench under normal traffic. Backfills shall be maintained easily passable to traffic at original paving level until acceptance of project or replacement of paving or sidewalks.

- f. Department of Highways requirements in regard to backfilling will take precedence over the above general specifications where they are involved.

K. Cut-Ins, Tie-Ins, and Cutting and Plugging

1. The OWNER shall not be responsible for extra costs of cut-ins, tie-ins, cutting and plugging, due to water not being entirely cut off by the existing water main valves.
2. A cut-in is defined as the removal of one section of existing pipeline (2 cuts of pipe) and insertion of one or more new pipeline connections therein.
3. A tie-in is defined as the removal of an existing plug or cap and the connecting of the new pipeline into the existing pipeline or fitting or valve at the joint opened by such removal.
4. A cutting and plugging is defined as the cutting and installation of a plug in an existing line.

3.03 FIELD QUALITY CONTROL

A. Testing Polyvinyl Chloride (PVC) Pressure Pipe During Construction Period

1. Prior to pressure testing the pipe shall be center loaded with backfill to prevent arching and whipping under pressure. Center loading shall be done carefully so that joints will be completely exposed for examination during testing unless conditions warrant complete backfill before testing.
2. During the general construction period the following pressure testing procedure shall be followed (on sections that can be separately isolated):
 - a. After the PVC pipe is assembled in the trench a test of not more than 30 percent above the system's anticipated working pressure shall be applied with either air or water. After 2 consecutive tests have been performed without any failure, the CONTRACTOR at his option and with the ENGINEER'S permission may discontinue testing until the system is completed. Testing shall then be performed as outlined herein in this Section.

B. Testing Water and Sewage Force Main Piping for Leakage

1. The CONTRACTOR will be required to test all pipelines and appurtenances with water. The maximum test pressure, measured at the lowest elevation of the pipeline being tested, shall be the pressure class of the pipe unless a specific test pressure is shown on the Drawings. The minimum test pressure shall be 150 percent of the pipelines normal operating pressure or 20 psig, whichever is greater.
2. Prior to testing, the line shall be filled with water and any entrapped air in the line removed. This may be accomplished at a service tap for water service or air release valve. In any case, the CONTRACTOR shall be responsible for removal of air from the system at no additional cost to the OWNER.
3. When the line or section being tested is pumped up to the required pressure, it shall be valved off from the pump and a pressure gauge placed in the line. The pressure drop in the line, if any, shall be noted. If no pressure drop is noted in 4 hours, the ENGINEER, at his discretion, may accept the line or section as being tested, or he may require the test run the full 24 hours.
4. At the end of the 24 hour test period, the pressure shall be recorded. If there is a drop in pressure, the CONTRACTOR will be required to pump the section being tested up to initial test pressure and maintain that pressure for 24 hours, measuring the amount of water required to accomplish this. The line will not be accepted until the leakage shall prove to be less than 10 gallons per inch diameter per mile of pipe per 24 hours. The 24 hour test shall be charted by timed pressure recorder.
5. Should there be leakage over the allowable amount, the CONTRACTOR will be required to locate and repair the leaks and retest the section.
6. If the leakage of a section of pipeline being tested is below the allowable amount, but a leak is obvious, in the opinion of the ENGINEER, due to water at the surface of the ground, or any other means of determining a leak, the CONTRACTOR will be required to repair those leaks.
7. The CONTRACTOR shall furnish meter and suction tank, pipe test plugs, and bypass piping, and make all connections for conducting the above tests. The pumping equipment used shall be centrifugal pump, or other pumping equipment which will not place shock pressures on the pipeline. Power plunger or positive displacement pumps will not be permitted for use on closed pipe system for any purpose.
8. Inspection of pipe laying shall in no way relieve the CONTRACTOR of the responsibility for passing tests or correcting poor workmanship.

C. Testing Plastic Chemical Piping for Leakage

1. Hydrostatic pressure testing (testing with water filled lines) is the only test method recommended and approved for pressure testing PVC and CPVC piping products. During pressure testing appropriate safety precautions must be taken to protect personnel and property from damage should a failure occur. The test pressure and duration of the pressure test performed should meet requirements of any local, state, or federal regulations as applicable. In the absence of any such requirements or regulations the following procedures can be used to properly conduct a hydrostatic pressure test on newly installed PVC and CPVC piping systems.
2. Strict adherence to proper solvent cementing instructions and set and cure times is essential to ensure the highest system integrity prior to pressure testing. Particular attention should be paid to pipe sizes, temperature at time of installation and any temperature variations over the set and cure period.
3. All solvent-cemented connections in the system must be fully and properly cured prior to filling the system with water.
4. Pipe must be adequately anchored/restrained to prevent movement during testing.
5. The system should not be tested until authorized and subsequently witnessed by the responsible engineer.
6. Extreme care shall be used to ensure complete venting of all entrapped air when filling the system with water. Entrapped air is a major cause of excessive surge pressures that result in burst failures of rigid plastic piping systems.
7. Air must be removed from the system to prevent it from being locked in the system when pressure is applied. If the piping system does not have air relief valves included, automatic or manual, the CONTRACTOR shall install air relief valves as needed to remove any entrained air.
8. The system should include the use of air release and air/vacuum relief valves located at high points in the system to vent air during filling, as well as during normal operation of the system.
9. The system must be filled slowly with water, venting air from valves at piping run ends and at elevations during the filling process. Whether a hydraulic hand pump or available water line pressure is used, any slow build-up of gauge pressure or any rapidly fluctuating gauge needle on a completely liquid filled system is a strong indication that entrapped air is present within the system. Should this occur, pressure should be immediately released and the line re-bled. Failure to do so can lead to a catastrophic failure when the water column is suddenly accelerated by the

rapidly decompressing air should a faulty joint separate or other failure occur.

10. A maximum test pressure of 150% of the maximum stated system design operating pressure is considered satisfactory. The test pressure selected must not exceed the working pressure rating of the lowest pressure rated component in the system (i.e. threaded components, flanges, unions, valves etc.). Reduced test pressures must be used for any elevated temperature testing due to field conditions affecting temperatures. Appropriate temperature de-rating factors must be applied to determine a suitable test pressure at elevated temperatures (>73 degrees Fahrenheit). The maximum operating pressure shall be assumed to be 30 psi unless stated otherwise or the pipe goes down a hill in which case the pressure shall be 30 psi plus the static head.
11. A test period of 2 hours is usually considered satisfactory to demonstrate the integrity of the system.
12. If a leak is found the pressure must be relieved, the failed section cut-out, replaced, and allowed to cure properly prior to recharging and retesting the system.
13. Large and/or complex systems shall be tested in segments as they are installed to permit evaluation and correction of improper installation techniques or other deficiencies as the project progresses. In buried applications the system should be hydrostatically tested prior to backfilling operations. During testing of buried lines, fittings and joints should be left exposed to aid in visual inspection for leakage. Sufficient earth cover should be placed over the pipe sections located between the fittings/joints to help prevent movement during testing. Any concrete anchors and/or thrust blocks must be allowed to cure completely prior to pressure testing.
14. **Caution:** Compressed air or gases must never be used for testing of rigid PVC and CPVC piping systems. Improper installation, especially poor workmanship in solvent cementing techniques, can lead to an abrupt release of tremendous stored energy in the presence of compressed air or gas. This abrupt release of energy creates a “whipping action” of the piping where shattering of pipe and fittings is then apt to occur at directional changes and at points where the system is rigidly restrained. This scenario creates a substantial safety hazard to personnel. In addition, secondary hairline stress fractures caused by this effect can also be initiated which will tend to propagate over time resulting in additional failures. It is also known that certain additives present in air compressor lubricants are not chemically compatible with PVC/CPVC materials and will initiate stress cracking of the plastic, further increasing the potential for additional failures.

D. Disinfection

1. Upon completion of the work and cleaning up, and prior to final acceptance, the CONTRACTOR shall disinfect all water lines constructed which are to carry treated water.
2. Prior to starting disinfection, all water mains must be thoroughly flushed to remove mud, rocks, etc. Disinfection will then be accomplished by the adding of a chlorine solution while filling the main to obtain the initial 50 ppm of chlorine. The CONTRACTOR shall supply all equipment, labor, etc., necessary for flushing and disinfecting the mains. The CONTRACTOR shall submit, in writing, to the ENGINEER, the method he proposes to use for adding the chlorine.
3. The calcium hypochlorite granule or tablet method shall not be used. The placement of small amounts of disinfectant material in the line during construction will not be allowed.
4. Disinfection shall be accomplished by filling the new and/or repaired portions of the system with water having a chlorine content of at least 50 parts per million and at the end of a 24 hour contact time a residual of at least 25 parts per million shall remain. At the end of the 24 hour contact period, all the sterilized surfaces and areas shall be thoroughly flushed from the water system. Chlorinated water shall be disposed of in accordance with 401 KAR 5:031 and 8:020, which state that the allowable in stream concentration of chlorine is 10 ug/l, which is equal to 0.01 mg/l. The CONTRACTOR shall submit, in writing to the ENGINEER, the method he proposes for dechlorinating. Recommended chemicals, as given in AWWA C651, are sulfur dioxide, sodium bisulfate, sodium sulfite, and sodium thiosulfate.
5. For tie-ins to an existing system such as tapping valves or direct cut-in, disinfection shall, at the ENGINEER'S discretion, consist of thoroughly cleaning the new part(s) with a solution containing not less than 200 mg/l (ppm) chlorine.
6. After initial disinfection and flushing, the OWNER will collect water samples for bacteriological testing. A core zone, which includes up to the first 2 mile, shall be established. Two samples shall be taken from the core zone. Additionally, 1 sample taken from each mile of new distribution main shall be taken for analysis. A new or routine replacement main shall not be placed in service until negative laboratory results are obtained on the bacteriological analyses. Sample bottles shall be clearly identified as "special" construction tests. If any of the samples are found to be positive or contain confluent growth, the CONTRACTOR shall repeat the disinfection procedure until the required numbers of negative samples are obtained.
7. The new water line(s) shall not be accepted by the OWNER for operation until the above sterilization procedures have been completed. The cost of

sterilization/dechlorination procedures shall be incorporated into the CONTRACTOR'S lump sum bid.

3.04 BASIS OF PAYMENT

A. Excavation and Backfilling

1. Trenching, Laying, and Backfilling Pipelines

a. Lump Sum Contracts

- (1) The CONTRACTOR'S lump sum bid shall include all costs for trenching, laying and backfilling pipelines.

2. Solid Rock Excavation

a. Unclassified Excavation

- (1) Excavation shall be unclassified and the cost of all excavation of whatever nature and state, including solid rock, shall be included in the CONTRACTOR'S unit price bid for each item of construction requiring excavation or included in the lump sum bid for such type contracts.

3. Search and Extra Depth Trench Excavation

- a. "Search" trench excavation shall be the actual measured excavation within limits as acceptable to the ENGINEER.

- b. "Extra Depth" trench excavation shall be the calculated yardage below the lowest point of excavation which would normally have been required for construction.

- c. Trench width limitations for either condition shall be as listed in the following table:

For 6" Pipe 2'-6" For 16" Pipe 2'-11"

For 8" Pipe 2'-9" For 18" Pipe 3'-2"

For 10" Pipe 2'-9" For 20" Pipe 3'-5"

For 12" Pipe 2'-9" For 24" Pipe 3'-8"

For 14" Pipe 2'-9"

- d. The work of uncovering and backfilling required for locating existing sewers, water lines and other existing facilities for avoidance in location of proposed pipelines where such uncovering and backfilling is not within trench for improvements, shall be paid

for at a price per cubic yard for such excavation actually removed and backfilled under item for "Search or Extra Depth Trench Excavation." Such payment does not include uncovering existing utility lines for their protection during or after trenching operations for the proposed pipeline.

4. Mechanical Tamping

- a. Mechanical tamping is defined as backfill placed and compacted by power driven mechanical equipment to a greater density than can be achieved by natural settlement or hand tamping methods. Mechanical tamping will be required when ordered by the ENGINEER with payment by the cubic yard so compacted. Measurement, but not actual extent of the mechanical tamping, shall be limited by the numerical maximum allowable trench width (for each size pipe) as shown in the table listed under "Search and Extra Depth Trench." Payment for mechanical tamping shall not include the specified bedding, haunching, or initial backfill required above and below the top of pipe.

B. Trench and Pipe Stabilization

1. Extra Excavation

- a. Extra excavation required for trench or pipe stabilization shall be paid by the cubic yard so excavated.

2. Crushed Stone for Trench Stabilization

- a. Crushed stone ordered by the ENGINEER for trench stabilization shall be as specified in Section 02235 of these Specifications and paid by the ton so placed.

3. Crushed Stone for Pipe Bedding

- a. Additional crushed stone bedding ordered by the ENGINEER for pipe stabilization shall be as specified in Section 02235 of these Specifications and paid by the ton so placed.

4. Plain or Reinforced Concrete Arch

- a. Plain or reinforced concrete arch called for on the Drawings and/or ordered by the ENGINEER shall be paid for by the linear foot of pipeline upon which it is placed.

5. Plain or Reinforced Concrete Cradle

- a. Plain or reinforced concrete cradle called for on the Drawings and/or ordered by the ENGINEER shall be paid for by the linear foot so placed.

C. Water Mains

1. Lump Sum Contracts

- a. All work shall be included in the CONTRACTOR'S lump sum bid.

D. Excess Materials

1. The lump sum bid shall include trench excavation, tunneling, backfill, and the cost of disposition of excess excavated materials.

E. Valves

1. The lump sum bid for the installation of valves shall include valve boxes, the cost of the concrete collar required around the valve boxes and extension stems if required.

F. Testing and Purging

1. The lump sum bid for installing pressure lines shall include cleaning, purging, and testing the line.

G. Blocking of Bends and End of Pipe

1. The payment for blocking of bends and ends of pipes shall be included in the lump sum bid.

H. Disinfection and Dechlorination

1. The required disinfection of pipelines followed by disposal of the chlorinated water used in the disinfection process shall be included in the lump sum bid.

I. Tracing Wire or Tape

1. The cost of tracing wire or tape installed with nonmetallic pipe shall be included in the lump sum or unit price bid.

END OF SECTION

SECTION 02930

SEEDING

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Provide all labor, materials, equipment and services required to perform seeding as shown on the Contract Drawings and as specified herein.
- B. All areas disturbed by construction operations shall receive a protective cover of vegetation. The work shall consist of preparing the area for treatment, furnishing and placing soil amendments, fertilizer, seed, inoculants, mulch and plantings as specified in the designated areas.

1.02 RELATED WORK

- A. Special requirements for materials and equipment are given in Sections 00700 and 01600.
- B. Special sequence or schedule requirements (if any) are specified in Section 01010 - Summary of Work.

1.03 QUALIFICATIONS

- A. The work shall be done by a provider who is experienced, reputable, and qualified in the tasks required.

1.04 SUBMITTALS

- A. Shop Drawings and other items needed to establish compliance with the Drawings and these Specifications shall be submitted to the ENGINEER in accordance with Section 00700.
- B. Where fertilizer is furnished from bulk storage, the CONTRACTOR shall furnish a supplier's certification of analysis and weight. When required by the Contract, a representative sample of the fertilizer shall be furnished the OWNER for chemical analysis.

1.05 WARRANTY

- A. Refer to Division 0 and 1 for warranty requirements.

PART 2 PRODUCTS

2.01 SEED

- A. All seed shall conform to the current rules and regulations of the state where it is being used and from the latest crop available. It shall meet or exceed the standards for purity and germination listed herein.

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- B. Seed shall be labeled in accordance with the state laws and the U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act in effect on the date of invitations for bids. Bag tag figures will be evidence of purity and germination. No seed will be accepted with a date of test of more than 9 months prior to the date of delivery to the site.
- C. The seed for use on this project shall be of the type as listed below with the listed germination and purity qualifications.

<u>Species</u>	<u>% Purity</u>	<u>% Germination</u>
Tall fescue (KY-31) (<u>Festuca arundinacea</u>)	98.5	80
Ryegrass (<u>Lolium multiflorum</u>)	98.0	90
Oats (<u>Avena sativa</u>)	98.0	90
Rye, grain (<u>Secale cereale</u>)	97.0	85
Redtop (<u>Agrostis alba</u>)	90.0	80
Ky. Bluegrass (<u>Poa pratensis</u>)	81.0	70

2.02 FERTILIZER

- A. Unless otherwise specified the fertilizer shall be a commercial grade fertilizer or as specified herein. The fertilizer shall meet the standard for grade and quality specified by state law.

2.03 INOCULANTS

- A. The inoculant for treating legume seeds shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species and shall not be used later than the date indicated on the container or as otherwise specified. A mixing medium, as recommended by the manufacturer, shall be used to bond the inoculant to the seed. Two times the amount of the inoculant recommended by the manufacturer shall be used, except when seed is applied by use of hydraulic seeder, in which case 4 times the amount of inoculant recommended by the manufacturer shall be used. Seed shall be sown within 24 hours of treatment and shall not remain in the hydraulic seeder longer than 4 hours.

2.04 SOIL AMENDMENTS

- A. Lime shall consist of standard ground agricultural limestone, or equal. Standard ground agricultural limestone is defined as ground limestone meeting current requirements of the State Department of Agriculture. Agricultural lime or other needed soil amendments will be uniformly applied at the rate specified herein.

2.05 ASPHALT EMULSION

- A. Asphalt emulsion shall conform to the requirements of ASTM D 977-80, "Emulsified Asphalt." The emulsified asphalt may be rapid, medium, or slow cure materials.

2.06 STRAW MULCH MATERIALS

- A. Straw mulch materials shall consist of wheat, oat, or rye straw, hay, grass clippings cut from any native grasses or other plants acceptable to the ENGINEER. The mulch material shall be air dry, reasonably light in color, and shall not be musty, moldy, caked, or otherwise of low quality. The use of mulch that contains noxious weeds will not be permitted. The CONTRACTOR shall provide a method satisfactory to the ENGINEER for determining weight of mulch furnished.

2.07 OTHER MULCH MATERIALS

- A. Mulching materials, such as wood cellulose fiber mulch, emulsion type, synthetic fiber mulch, netting, mesh, and other mulching materials that may be required for specialized locations and conditions, when specified, must be accompanied by the manufacturer's recommendations for methods of application.

PART 3 EXECUTION

3.01 EXTENT

A. Lump Sum Contracts

1. Seeding

- a. Except for areas occupied by structures, roadways, walkways, and sodded areas specified above, the entire area disturbed by construction operations shall be seeded.

B. Unit Price Contracts

1. Seeding

- a. Where lawns, pastures, thin grass or cover crops are destroyed by trenching, laying, backfilling, or tunneling operations, surface shall be prepared by disking, fertilizing and seeding. Seeding, fertilizing, and mulching shall be included in the price for trenching and backfilling. The timing of this operation shall be controlled by the ENGINEER. Requirements of the Department of Highways for reseeding shall take precedence over these Specifications where they are involved.
- b. When the construction project is located on privately owned property on easements acquired by the OWNER and the individual landowner requires the cover grass to be the same as present at the beginning of construction, the CONTRACTOR shall supply the seed required by the landowner. Seeding and fertilizing in such instances, shall be at the rate as recommended by the seed producer with soil preparation and mulching as stated herein.

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- c. When the construction project encroaches within the rights-of-way of the Department of Highways, the seed mixture, application rate and method of mulching shall be as required by the Department of Highways.

2. CONTRACTOR'S Options

- a. Where surface grasses and cover are similar in nature throughout the length of the project, the CONTRACTOR may provide seed of one type or mixture for the entire project provided there are no objections by individual landowners involved and with permission of the OWNER and ENGINEER. In such cases, the seed type and/or mixture shall be that specified for lawn areas. Pasture and/or cover crop mixtures shall not be used for lawn application for any reason.
- b. When construction facilities or construction operations are located on or encroach on privately owned properties, the CONTRACTOR may, at his election, negotiate with the individual landowners for restoration of the surface. This negotiation and settlement may be for materials or labor or both as agreeable to the individual property owner. In such cases, the CONTRACTOR shall obtain from the individual landowner a "Release of Claims" releasing the OWNER from any further liability for surface restoration, a copy of which shall be provided for the OWNER and ENGINEER. This option shall apply to surface restoration only. The CONTRACTOR shall be responsible for cleanup and regrading work and for any settlement of the trench or graded area within the one year guarantee period.

3.02 SOIL PREPARATION

- A. All areas to be seeded shall be thoroughly cleaned, removing all debris of whatever nature. After the area has been cleaned, the soil for seeding shall be prepared as follows:
 - 1. Loosen the soil to a depth of not less than 4 inches.
 - 2. Work the soil until it is in good condition, raking with hand rake to complete the soil preparation and make final finished grade.
 - 3. On areas to be seeded, the raking in of fertilizer may be done concurrently with raking in of seed as hereinafter specified.

3.03 SEEDING

A. Temporary Cover (All Areas)

- 1. This item shall consist of seeding a temporary cover of grass, or grass and small grain, on areas disturbed on the construction site which will not be redisturbed within a 60 day period. The determination of the area to be temporarily seeded and the time of seeding shall be controlled by the ENGINEER.

2. The seed mixtures to be used for temporary cover will be governed by the time of year the seeding is accomplished. The mixtures and time of seeding shall be as follows:
 - a. Time of Seeding - 2/15 to 6/1
 - (1) Rye 1-1/2 bushels and ryegrass 25 pounds per acre; or tall fescue 30 pounds and ryegrass 20 pounds per acre.
 - b. Time of Seeding - 6/2 to 8/15
 - (1) Tall fescue 30 pounds and ryegrass 20 pounds per acre; or, spring oats 2 bushels and ryegrass 30 pounds per acre.
 - c. Time of Seeding - 8/16 to 2/14
 - (1) Rye 2 bushels and ryegrass 20 pounds per acre; or, tall fescue 30 pounds and ryegrass 20 pounds per acre.
 - d. Lime will not be required for temporary seeding.
 - e. Fertilize at the rate of 400 pounds per acre of 10-10-10 fertilizer, or equivalent, broadcast uniformly on the area to be seeded.
 - f. All seed shall be broadcast evenly over the area to be seeded and cultipacked or otherwise pressed into the soil. Seed and fertilizer may be mixed together and applied after the seed bed has been prepared.
 - g. Mulch for temporary seeding will not be required except on those areas, in the ENGINEER'S opinion, too steep to hold the seed without protective cover.

B. Seeding (Permanent Cover)

1. This item consists of seeding all areas disturbed during construction. All grading and/or filling of rills and gullies to a cross section acceptable to the ENGINEER shall be included in the seed bed preparation.
 - a. Pastures and Cover Crops
 - (1) All areas to be seeded shall be seeded with 50 pounds of tall fescue (KY-31) per acre, subject to the provisions hereinbefore stated in this Specification group.
 - (2) Prepare seed bed as specified in Article 3.02 of this Specification Section unless instructed otherwise by the ENGINEER. Apply 2 tons of lime per acre.

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- (3) No mulch will be required except when seeding is done during the period October 16 through January 31, or May 2 through July 31, tall fescue straw shall be used at the rate of 2 tons per acre.

b. Lawns and Yards

- (1) This item consists of seeding all areas equivalent to residence lawns or yards disturbed during construction. All grading and filling shall be accomplished in a manner acceptable to the ENGINEER prior to the placement of seed and materials. Seed shall consist of a mixture of one part Red Top and 3 parts high grade Kentucky Bluegrass seed mixed together and broadcast at the rate of 2 lbs to each 1,000 square feet of surface, to be seeded. Apply 2 tons of lime per acre. Apply 1500 pounds of 10-20-20 fertilizer per acre. Apply mulch at the rate of 2 tons per acre. Mulch shall be applied to all lawn areas regardless of the time seeded.

3.04 MULCHING

- A. Mulch materials, meeting the requirements of Part 2 of this Specification Section, shall be applied at the rate of 2 tons per acre.
- B. The mulch shall be stabilized by running a "weighted" disk harrow with disks set straight, over the area on the contour, after the mulch has been applied, so as to imbed or press a part of the straw into the soil sufficiently to hold it in place. On earth embankments or areas too steep for use of mechanized equipment, the mulch shall be held in place by using small stakes and twine or other method acceptable to the ENGINEER.
- C. Mesh, netting or other special protective cover shall be at locations as shown on the Drawings and shall be installed according to the manufacturer's recommendations.

END OF SECTION

SECTION 05540

CASTINGS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Provide all labor, materials, and equipment required to install castings as shown on the Drawings and specified herein. Included in this section are manhole covers, steps, valve boxes, hatch covers, and commemorative plaques.

1.02 RELATED WORK NOT INCLUDED

- A. Special valves are included in Division 15, Section 15104.

1.03 SUBMITTALS

- A. The CONTRACTOR shall submit to the ENGINEER, in accordance with Division 1, Section 00700, copies of construction details of castings proposed for use.

PART 2 MATERIALS

2.01 GENERAL

- A. All castings shall be gray iron, conforming to the requirements of the ASTM Standards, Designation A 48-83, Class 35-B for manhole casting and class 20 for valve boxes.

2.02 VALVE BOXES

- A. Slide Type for Iron Body Gate Valves

1. Valve boxes for sizes through 12-inch valves shall be the cast iron slide type, without screw, of sufficient length to allow for 30 inches of cover over the top of the pipe. The inner section shall have a minimum inside diameter of 5-1/4 inches with a hood type base that will cover the packing gland on valves through 12 inches in size (minimum of 8 inches inside diameter). The base of the top section shall be flanged at least 1-1/4 inches. The caps shall be circular with a corrugated surface and have pick holes in the periphery and be marked "Water," "Gas," "Sewer," or "Air" according to use. The valve boxes shall be Tyler Pipe/Utilities Division, 6855 Series, or equal.
2. For vertical valves larger than 12-inch size, provide Tyler Pipe/Utilities Division Series 6865 with No. 8 base, or equal.
3. Valve boxes for valves in the horizontal position shall be cast iron Tyler Pipe/Series 6855 or equal, with a base that is sized to allow covering of the bevel gear case and centering of the operating nut in the valve box.

PART 3 EXECUTION

3.01 INSTALLATION OF CASTINGS

A. Installation In or On Structures

1. The installation of castings is generally covered under specifications for pipe work and manholes. Castings shall be leveled, plumbed and secured before pouring concrete or attaching to masonry with solid, watertight, cement mortar joints.

B. Installation on Buried Valves

1. Valve box construction shall consist of the approved manufactured box and accessories. Line pipe shall not be accepted for use as valve boxes.
2. Mechanically tamp backfill, or backfill with crushed rock (per requirements of location - see Section 02610 of these Specifications) to the bottom of the packing gland of the operating nut. Install valve box base centered over operating nut.
3. Install valve box shafts, of the required height, and top section to proposed top elevation. Mechanically tamp backfill around box or backfill with crushed rock.
4. Place reinforced concrete collar around top section when shown on the Drawings.
5. Furnishing and installation of the valve box and accessories, including the concrete valve box collar, shall be included in the price bid for furnishing and installation of the valve.

END OF SECTION

SECTION 15102
VALVES (WATER RELATED)

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment, and incidentals required and install complete and ready for operation all valves and appurtenances as shown on the Contract Drawings and specified herein.
- B. The equipment shall include but not be limited to, the following:
 - 1. Gate valves
 - 2. Tapping valves, sleeves and crosses

1.02 RELATED WORK

- A. Excavation, backfill and grading is included in Division 2.
- B. Piping is included in the respective sections of Division 2.
- C. Special sequence or schedule requirements (if any) are specified in Section 01010 - Summary of Work.

1.03 DESCRIPTIONS OF SYSTEMS

- A. All of the equipment and materials specified herein is intended to be standard for use in controlling the flow of water.
- B. See the valve schedule for valve sizes, quantities, connections, class, type of actuator and location.

1.04 QUALIFICATIONS

- A. All of the types of valves and appurtenances shall be products of well established firms who are fully experienced, reputable and qualified in the manufacture of the particular equipment to be furnished. The equipment shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these specifications as applicable.
- B. Acceptable Manufacturers
 - 1. Gate Valves - Kennedy, Clow, Mueller or equal.

1.05 SUBMITTALS

- A. Complete shop drawings of all valves and appurtenances shall be submitted to the ENGINEER in accordance with the requirements of Sections 00820 and 01300.

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B. The ENGINEER shall be furnished 2 certified copies of reports covering the required leakages, hydrostatic and proof-of-design tests on the valves.

C. Gate Valves

1. The manufacturer shall furnish the ENGINEER 2 copies of an affidavit stating that the valve and all materials used in its construction conform to the applicable requirements of ANSI/AWWA C509-94, and that all tests specified therein have been performed and that all test requirements have been met.
1. The ENGINEER shall be furnished 2 copies of affidavit that the "Valve Protection Testing" has been done and that all test requirements have been met.
2. The ENGINEER shall be furnished with 2 copies of affidavit that inspection, testing and rejection are in accordance with AWWA C509-94 Section 6.1 through Section 6.2.

1.06 OPERATING INSTRUCTIONS

A. Manufacturer's operating and maintenance instructions shall be furnished to the ENGINEER as set forth in Section 01600.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. General

1. All valves and appurtenances shall be of the size shown on the Drawings and as far as possible all equipment of the same type shall be from one manufacturer.
2. All valves and appurtenances shall have the name of the maker, flow-directional arrows, and the working pressure for which they are designed cast in raised letters on some appropriate part of the body.
3. Except as otherwise shown on the Drawings or specified herein, all valves with operators located 7 feet or more above the operating floor shall be provided with chain wheel operators complete with chain guides and galvanized steel chain.
4. All buried valves shall open left (counter clockwise). Insofar as possible, all valves shall open counter clockwise.
5. All valves must be provided with suitable operating devices and adapted for operation in the position in which they are shown on the Drawings.
6. Valves shall have types of operators as shown on the Drawings and/or listed in the valve schedule.

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7. All bolts and studs shall be in accordance with ASTM A-307 Grade B and nuts shall be in accordance with ASTM A-563. Bolts, studs and nuts shall be electrogalvanized according to ASTM B-633.
8. All bolts, studs and nuts in contact with water, in any moist atmosphere or damp area such as occurs above water, or exposed to weather shall be stainless steel.
9. All bolts delivered to the job shall be free of rust and dirt and shall be stored in a manner to protect them from rust and dirt. All bolts shall be tightened to the proper torque. They shall be of the size recommended for the pipe and fittings they are to be used on and shall be in the recommended quantity. Tightening of bolts shall be alternated, so as to not produce undue stress on the valves and fittings.

2.02 GATE VALVES

A. Resilient-Seated Gate Valve (AWWA Type)

1. General
 - a. Resilient-seated gate valves shall conform in all respects to ANSI/AWWA C509-94 with non-rising or rising stems, in sizes 3, 4, 6, 8, 10, and 12-inch NPS except as otherwise noted below. They shall be designed for a working water pressure of 200 psi.
 - b. Valves shall have a clear unobstructed water way, without pockets or ridges in the seating area of the valve body. When fully open the water way shall be at least as large as the pipe diameter to which it is connected.
 - c. All future references to section and paragraph numbers shall be those of ANSI/AWWA C509-94.
2. Materials
 - a. Physical and Chemical Properties
 - (1) Physical and chemical characteristics of the valve components shall be in accordance with Section 2.2, except that carbon steel castings for valves are not acceptable. Paint shall be as hereinafter specified under "Valve Protection."

3. Detailed Design

a. Valve Ends

(1) General

- (a) Valve ends shall be flanged, mechanical joint, asbestos cement, PVC or rubber ring slip-on type as shown on the Drawings and/or as listed in the resilient seat valve schedule.
- (b) In resilient seated tapping valves, end connections may be a combination of flanged and mechanical joint, flanged and asbestos cement or flange and flange.

(2) PVC Joints

- (a) PVC joints shall be rubber ring slip-on type.

b. Stem Seal

- (1) Stem seals shall be O-rings in accordance with Section 4.8, paragraph 4.8.2 and subparagraph 4.8.2.1, and materials shall be in accordance with paragraph 4.8.3.

c. Wrench Nuts and Handwheels

- (1) Wrench nuts and handwheels shall be in accordance with Section 4.11 and subparagraphs 4.11.1 through 4.11.5, except that all valves whether NRS or O S & Y shall open by turning counterclockwise.

d. Gaskets

- (1) Gaskets where used shall be in accordance with Section 4.15. O-rings of Buna-N or equal material.

e. Valve Seats

- (1) Valve seats shall be in accordance with Section 4.16, except that seats applied to the valve body are not acceptable.

4. Valve Boxes

- a. Valve boxes shall be provided for each buried valve. They shall be cast iron, of heavy pattern, adjustable type and provided with cast iron cover. The upper section of each box shall have a bottom flange of sufficient bearing area to prevent settling. The bottom of the lower section shall enclose the stuffing box and operating nut of the valve. Boxes shall have barrels of not less than 5-inch in diameter and be of length adapted to pipe cover. Boxes shall be

adjustable, with a lap of at least 6 inches when in the most extended position. Covers shall have the word "OPEN" and an arrow indicating the direction of opening cast into covers in raised letters. Provide valve stem extensions for all buried valves.

5. Fabrication

a. Valve Protection (Painting and Coating)

(1) Exterior

(a) Exterior painting of the valve may be in accordance with section 2.2.7, or it may be the same as that specified for interior painting of the valves.

(2) Interior

(a) The interior of the valve shall be prepared for and painted in accordance with AWWA C550-90. The coating may be a fusion bonded epoxy, in 8 to 10 mil thickness or it may be a two-part thermosetting epoxy having the same mil thickness. After application the interior coating shall be visually examined and holiday tested in accordance with AWWA C550-90.

6. Valve Stands and Extension Stems

a. Valve stand shall be heavy pattern cast iron, at least 32 inches high. They shall be bronze mounted, handwheel operated on ball bearings. Valve stand handwheels shall be the same diameter as those shown for handwheels directly on valves. Non-rising stem stands shall have valve position indicator. Rising stem stands may be furnished without valve position indicators.

b. Extension stems for non-rising stem valves shall have stem guides for each 10-foot length of extension stem.

c. All extension stems shall be connected by bolted couplings for connection to a removal from the valves and stands. Nuts and bolts in connections shall be stainless steel. All extension stem connecting pins shall be stainless steel.

2.03 TAPPING VALVES AND TAPPING SLEEVES AND CROSSES

A. Tapping Valves

1. Tapping valves for use with tapping sleeve and crosses shall be in accordance with the specifications for resilient seated gate valves or in accordance with C-500-93 for double disc parallel seat gate valves, except that one end shall have a flanged connection and the other end either a hub or mechanical joint connection.

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2. They shall be for 200 psi in sizes 2 inches through 12 inches and 150 psi in sizes 14-inch and larger.
3. Valves shall open by turning counterclockwise.
4. Inlet flanges of valves shall meet ANSI B16.1, Class 125 standard.

B. Tapping Sleeves and Tapping Crosses

1. Tapping sleeves and tapping crosses shall have heavy cross sections to strengthen the existing water main at the point of installation.
2. Mainline end connections to existing pipeline shall be mechanical joint with large and small gaskets or hub end for lead and jute joints.
3. Mechanical joint tapping sleeves and crosses shall have a maximum working pressure of 200 psi. Sleeves and crosses with caulked-type joints shall have a maximum water working pressure of 150 psi.
4. Outlet end of tapping sleeves and crosses shall have ANSI B16.1, Class 125 flanges.

C. Quality Standard

1. All tapping valves, tapping sleeves and tapping crosses shall be in features and quality equal to those of American Valve and Hydrant Company, Mueller Company or Dresser Manufacturing Company.

D. Test and Certification

1. Tests on tapping valves shall be in accordance with these Specifications for resilient seated gate valve or in accordance with C-500-93 for double disc parallel seat gate valves.

E. Protection

1. Tapping Valves
 - a. Protection of tapping sleeves and valves shall be in accordance with these Specifications for double disc parallel seat gate valves.
2. Tapping Sleeves and Crosses
 - a. Protection for tapping sleeves and crosses shall be in accordance with these Specifications for cast iron pipe fittings.

F. Marking and Tagging Valves

1. Tagging of tapping valves shall be in accordance with these Specifications for resilient seated gate valves or in accordance with C-500-93 for double disc parallel seat gate valves.

PART 3 EXECUTION

3.01 INSTALLATION (IN STRUCTURES, VAULTS AND BASINS)

A. Interior

1. All valves and appurtenances shall be installed at the locations shown on the Drawings. All necessary materials, parts, operators and gaskets shall be furnished and installed under this Contract.
2. All valves shall be installed with their operators located in such a plane that it will not interfere with pedestrian traffic. All valves with the operator more than 7'-0" off the floor shall be modified for chain operation at no cost to the OWNER.
3. Particular attention shall be paid to the location and orientation of all valve operators to provide an accessible installation. Should any valve be located with the operator inaccessible and simple re-orientation of the valve would make it accessible, the valve shall be moved at no cost the OWNER.
4. All pipe and valves shall be supported by pipe hangers, concrete piers or other special supports as required to prevent undue stress being placed on the pipe, any fitting, valve or item of equipment. Equipment shall not be used to support pipe and fittings. The pipe shall be free of all openings in walls and slabs when the final position of the piping is attained and before sealing the annular space about the pipe.
5. The CONTRACTOR shall thoroughly clean the valves fittings before starting erection. All scale, rust and dirt shall be removed by power brushing and/or solvent cleaning.

B. Exterior

1. Valves in ground shall be installed with operating stems vertical, unless otherwise shown on the Drawings or called for in these Specifications. Tops of operating nuts shall be not more than 30 inches below ground surface. Where valve operating nuts are more than 30 inches below tops of valve boxes, stems shall be provided to bring the operating nut to within 12 to 24 inches of box tops.
2. Valve boxes shall be accurately centered over valve operating nuts and the backfill shall be mechanically tamped about them, to prevent subsequent movement. Tops of boxes shall be flush with ground surface, paving, walk, or road surface.
3. The cost of the concrete collar, required about valve boxes, shall be included in the unit price for the valve and/or box.
4. All valves, valve stands, extension stems, sluice gates, shear gates, mud valves, check valves, and floor boxes, on or in structures, shall be installed as shown on the Drawings. Valve stands shall be set plumb and

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level and shall be anchored as shown on the Drawings. Stands shall be properly centered over valve stems or operating mechanism. Any valve or stand found to be binding unduly shall be made to operate freely.

- C. For gate valves, installation shall be in accordance with Appendix A, Sections A.5.1 through A.5.7 of ANSI/AWWA C509-94.

3.02 SHOP PAINTING

- A. Interior surfaces of all valves, the exterior surfaces of buried valves and miscellaneous piping appurtenances shall be given a shop finish of an asphalt varnish conforming to Federal Specification TT-V51e for Varnish Asphalt.
- B. The exterior surface of various parts of valves, operators, floorstands and miscellaneous piping shall be thoroughly cleaned of all scale, dirt, grease, or other foreign matter and thereafter 1 shop coat of an approved rust-inhibitive primer such as specified in Section 09900 shall be applied in accordance with the instructions of the paint manufacturer.

3.03 INSPECTION AND TESTING

- A. The various pipelines in which the valves and appurtenances are to be installed are specified to be field tested. During these tests any defective valve or appurtenance shall be adjusted, removed and replaced, or otherwise made acceptable to the ENGINEER.
- B. Various regulating valves, strainer, or other appurtenances shall be tested to demonstrate their conformance with the specified operational capabilities any deficiencies shall be corrected or the device replaced or otherwise made acceptable to the ENGINEER.
- C. Testing shall be done in accordance with Section 02610 "Testing" with no visible leaks allowed on valves.

3.04 FIELD PAINTING

- A. The CONTRACTOR and the equipment manufacturer shall coordinate shop paint and field paint to assure compatibility.

3.05 TOOLS AND SPARE PARTS

- A. All special tools required for normal operation and maintenance shall be furnished by the valve manufacturer.

3.06 METHOD OF PAYMENT

- A. Payment for the complete system shall be included in the lump sum or unit price bid for the project and shall include the furnishing of materials, equipment and parts and installation of all components to provide a completely functional system.

END OF SECTION

SECTION 15104
SPECIALTY VALVES (WATER)

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment, and incidentals required and install complete and ready for operation all valves and appurtenances as shown on the Contract Drawings and as specified herein.
- B. The equipment shall include but not be limited to, the following:
 - 1. Altitude valves.
 - 2. Air and vacuum valves.
 - 3. Air release valves.
 - 4. Surge relief valves.
 - 5. Pressure reducing valves.

1.02 RELATED WORK

- A. Excavation, backfill and grading is included in Division 2.
- B. Piping is included in the respective sections of Divisions 2 and 15.
- C. Valves and service accessories on all plumbing systems are included in Division 5.
- D. Special sequence or schedule requirements (if any) are specified in Section 01010 - Summary of Work.

1.03 DESCRIPTIONS OF SYSTEMS

- A. All of the equipment and materials specified herein are intended to be standard for use in controlling the flow of water.
- B. See the valve schedule **(on the Drawings)** or **(in the Specifications)** for valve sizes, quantities, connections, class, type of actuator and location.

1.04 QUALIFICATIONS

- A. All types of valves and appurtenances shall be products of well established firms who are fully experienced, reputable, and qualified in the manufacture of the particular equipment to be furnished. The equipment shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these Specifications as applicable.

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B. Acceptable Manufacturers

1. Altitude Valves - Golden Anderson, Ross, or equal.
2. Air and Vacuum Valves - Valve and Primer Corp., APCO, Golden Anderson, or equal.
3. Air Release Valves - Valve and Primer Corp., APCO, Golden Anderson, or equal.
4. Surge Relief Valves - APCO, Golden Anderson, Ross, or equal.
5. Pressure Reducing Valves - APCO, Golden Anderson, Ross, or equal.

1.05 SUBMITTALS

- A. Complete shop drawings of all valves and appurtenances shall be submitted to the ENGINEER in accordance with the requirements of Sections 00820 and 01300.
- B. The manufacturer shall furnish to the ENGINEER 2 copies of written certification that the valves have been tested hydrostatically and tested for proper performance, and that the materials of construction conform to the appropriate ASTM specifications. Refer to the Special Conditions for the number of copies of descriptive literature, catalog data sheets, and Drawings to be submitted to the ENGINEER, for review and comment.

1.06 OPERATING INSTRUCTIONS

- A. Manufacturer's operating and maintenance instructions shall be furnished to the ENGINEER as set forth in Section 01600.

1.07 EQUIPMENT OR SYSTEM WARRANTY

- A. Refer to Section 01600 for warranty requirements.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. General

1. All valves and appurtenances shall be of the size shown on the Drawings and as far as possible all equipment of the type shall be from one manufacturer.
2. All valves and appurtenances shall have the name of the maker, flow-directional arrows, and the working pressure for which they are designed cast in raised letters on some appropriate part of the body.
3. All buried valves shall open left (counterclockwise). Insofar as possible, all valves shall open counterclockwise.

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4. All valves must be provided with suitable operating devices and adapted for operation in the position in which they are shown on the Drawings.

2.02 AIR AND VACUUM VALVES (FOR PIPELINES AND PUMPS)

A. General

1. Air and vacuum valves shall be designed to allow large quantities of air to escape out of the orifice when filling a pipeline and to close watertight when water enters the valve. To break a vacuum, the air and vacuum valve shall also permit large quantities of air to enter through the orifice, when a pump is stopped or the pipeline is being drained. The discharge orifice area shall be equal to or greater than the inlet of the valve. The valve shall consist of a body, cover, baffle, float, seat and where called for, a water diffuser. The baffle will be designed to protect the float from direct contact of the rushing air and water to prevent the float from closing prematurely in the valve. The seat shall be fastened into the valve cover without distortion and shall be easily removable. The float shall be of stainless steel designed to withstand 1,000 psi. The float shall be center guided for positive seating.
2. Air and vacuum valves for installation on pump discharge lines, where the water working pressure is 150 psi or less, in sizes 3-inch and under, shall be provided with water diffuser and throttling devices and have screw connections. In sizes 4-inch and over they shall be provided with surge check units and have flanged connections.
3. Air and vacuum valves for installation on pump discharge lines, where the water working pressure is over 150 psi, in sizes 3-inch and under, shall be provided with diffuser and throttling devices and have screw connections. In sizes 4-inch and over they shall be provided with surge check units and have flanged inlet and outlet connections.
4. Air and vacuum valves on water transmission mains, at change of downward gradient and drastic change in gradient (not peaks), in sizes 2-inch and under, shall have water diffusers and screw connections. In sizes 3-inch and over they shall be provided with surge check units and have flanged inlet connection and protection hoods on outlet.
5. Air and vacuum valves on water transmission mains at peak changes in grade (highest point between adjacent low points) with the auxiliary (small) air release valve meeting requirement of these Specifications for Air Release Valves.

B. Materials of Construction

1. Body, Cover and Baffle
 - a. Valve bodies, covers and baffles shall be of cast iron, ASTM A48, Class 30.

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2. Float

- a. Valve floats shall be of stainless steel, ASTM A240.

3. Seat

- a. Valve seats shall be of Buna-N, nitrile rubber.

4. Bushings, Screws and Float Guides

- a. Bushings, screws and float guides shall be stainless steel or bronze, with selection being best to avoid galvanic action.

5. Water Diffuser

- a. Water diffuser shall be bronze.

C. Throttling Device

1. Throttling devices shall be of cast iron or malleable iron with screw connections, Valve and Primer Corp., APCO, or equal.

D. Surge Check Unit

1. The surge check unit shall be iron body, bronze mounted, Valve and Primer Corp., APCO Model 1600, Surge Check Valve, or equal. Surge check units shall have flanged ends.

E. Flanged Ends

1. Unless otherwise noted on the Drawings all flanged connections (inlet and outlet) shall be ANSI B1.6.1, 125 pound standard.

F. Drainage Provision

1. All valve bodies shall be provided with drain plugs.

G. Painting

1. Valves shall receive a heavy coat of red lead TTP86, Type IV, or equal.

H. Testing

1. All air and vacuum valves shall be hydrostatically and shop tested for proper performance prior to shipment.

I. Marking

1. Cast markings shall appear on the valve body showing valve size, manufacturer's name or trade mark, water working pressure and model number.

2.03 AIR RELEASE VALVES (FOR PIPELINES AND PUMPS)

A. General

1. Air release valves shall be designed with a small orifice to serve as a venting port wherever air is entrained in water under pressure. They shall be capable of automatic intermittent release of accumulated air in the valve and closing tight when water enters the valve.
2. Air release valves for installation (along with air and vacuum valves) on vertical turbine and deep well pumping units, where pump operation is continuous or nearly so, and water working pressure does not exceed 150 psi, shall be simple lever type and have screw connections. If operating water pressure exceeds 150 psi, the valves shall have compound levers and screw connections.
3. Air release valves on water transmission mains, regardless of whether they are used in conjunction with air and vacuum valves (as custom combination air release valves) or whether they are used alone on long stretches of transmission main without a summit, shall be compound lever type with screw connections.

B. Material of Construction

1. Materials of construction for Air Release Valves shall be the same as specified for Air and Vacuum Valves.

C. Other Features and Requirements

1. Drainage and/or blowoff provisions, painting, testing and marking shall be the same as specified for Air and Vacuum Valves.

2.04 ALTITUDE VALVE

A. General

1. The altitude control valve shall be of the single acting type functioning to close off at maximum water level in the water elevated tank and opening to refill the tank. It is intended for use only in situations where there is a separate discharge line from the reservoir or there is a check valved bypass around the altitude valve.
2. When it is desired to maintain a uniform water level in the reservoir or tank to within plus or minus 6 to 12 inches, a standard single acting altitude valve, equal to Golden-Anderson Industries, Inc. Figure 3200D should be used.
3. When it is desired to shut off the flow of water to the reservoir when it is full, and to allow water to flow from the reservoir until a predetermined low level is reached (in excess of 14.4-inch drop), the altitude valve should be equal to Golden-Anderson Industries, Inc. Figure 3200E, differential altitude valve.

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4. The valves shall be furnished with all hydraulic control piping and other necessary operating accessories.
5. Cut off valves shall be provided at each connection to the body of the main valve.

B. Standard Single Acting Altitude Valve

1. General

- a. The main valve shall operate on the differential principle such that the area of the underside of the piston is no less than the pipe area, and the area on the upper surface of the piston is of greater area than the underside of the piston.
- b. Throttling of the valve shall be accomplished by valve vee ports and not the valve seating surfaces.
- c. The valve shall be capable of operating in the position as shown on the Drawings. All internal parts shall be readily accessible without removing the main valve body from the pipeline. There shall be no stems, stem guides or spokes within the water way. There shall be no springs to assist in the valve operation.
- d. A visual valve position indicator shall be provided.
- e. It shall be possible to adjust the spring above the diaphragm for water level control 20 percent above or below factory setting.

2. Materials of Construction

- a. Valve bodies shall be of cast iron ASTM A-126B. The interior body trim shall be bronze ASTM B-62.
- b. The main valve piston shall be bronze ASTM B-62.
- c. Piston cups, liner cups and seat washers shall be of renewable leather and rubber. The renewable parts shall absorb all wear and eliminate metal to metal contact in the valve.
- d. The valve internal pilot shall be of all bronze construction.
- e. The 3-way pilot valve shall be of bronze or stainless steel.
- f. All other controls and piping shall be of noncorrosive materials.
- g. Unless otherwise noted on the Drawings, flanges shall conform to dimensions and drilling of ANSI B16.1.1 for cast iron flanges and flanged fittings, Class 125.

3. Function

- a. The altitude valve shall be tight closing to prevent reservoir overflow, and shall open to full pipeline area upon drop in water level of the reservoir within plus or minus 6 inches of water level.
- b. A hand operated valve in the power water line to the top of the piston shall be provided to control speed of valve closing.
- c. The reservoir or tank water level control shall be by means of a diaphragm operated, spring loaded, 3-way pilot valve.

C. Testing

1. The valve shall be factory tested to prove satisfactory performance.

2.05 SURGE RELIEF VALVES

A. General

1. The surge relief valve shall function to open to the atmosphere where the system pressure exceeds the pressure for which the pilot is set. It shall open rapidly, and close slowly at a predetermined rate of speed. Provision shall be made to regulate the closing speed of the valve.
2. The valve shall be of the globe body design with the inlet pressure entering the valve under the piston.
3. It shall be possible to install the valve in any position without impairing its functional value.
4. The valve shall be hydraulically operated, designed with a differential type piston, such that the piston will expose a greater area to the closing bore than to the opening force. A vent to the atmosphere from the side of the rake body shall produce the differential piston area and also serve to provide shock absorption preventing hammer and shock.
5. All wear on the valve shall be absorbed by the cups and seat ring, and there shall be no metal to metal contacts within the main valve.
6. The valve shall be GA Industries, Pittsburgh, PA Figure 6700-D, or equal.
7. The pilot valve shall be of the diaphragm operated, spring loaded type, single seated, balanced design.
8. Adjustment of the opening pressure of the main valve shall be accomplished by regulation of the handwheel on the pilot, and shall provide for a range of 20 psi.
9. The valve shall provide full pipeline opening when opened to full stroke, and it shall be drop tight when closed.

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10. It shall be possible to open the relief valve at any time by exhausting the pressure above the piston to the atmosphere.
11. The valve shall come completely piped, ready for installation.

B. Materials of Construction

1. The body and lids of the valve shall be constructed of high grade cast iron, ASTM A-126, Class B.
2. Interior parts of the valve, including the piston, liner and seat shall be of bronze conforming to ASTM B-62.
3. The liner and piston shall be equipped with renewable elastomer cups and the piston shall also have a leather or elastomer seat ring.
4. The pilot valve shall be of cast bronze conforming to ASTM B-62.

C. Testing

1. The body shall be hydraulically tested at a pressure of not less than 50 percent above the normal working pressure of the valve.
2. The testing of the valve for tight seating shall be conducted at a pressure equal to the maximum pressure of the valve.
3. The purchaser reserves the right to witness any or all tests, and must be given free access to the place of manufacture at all times.

D. Painting

1. After testing, the valve and parts shall be cleaned and all surfaces, except machined surfaces, shall receive 2 coats of manufacturer's standard shop coat paint. Machined surfaces receive a coating of water repellent, rust inhibitive compound.

E. Marking

1. Cast marking on valve bodies or covers shall show: manufacturer's name or trademark, valve size and figure number.

2.06 PRESSURE REDUCING VALVES

A. General

1. The reducing valve shall function to maintain a uniform valve downstream pressure preadjusted on the control pilot handwheel or adjusting screw. The control pilot shall be capable of field adjustments from near zero psi to 10 percent above the factory preset pressure, which shall be 30 psi.
2. The valve shall be completely piped ready for installation.

B. Description

1. The main valve shall operate on the differential piston principle such that the area of the underside of the piston is no less than the pipe area, and the area on the upper surface of the piston is of a greater area than the underside of the piston.
2. The valve piston shall be guided on its outside diameter by long stroke stationary Vee ports which shall be downstream of the seating surface to minimize the consequences of throttling. Throttling shall be done by the valve Vee ports and not the valve seating surfaces.
3. The valve shall be capable of operating in any position and shall incorporate only one flanged cover at the valve top from which all internal parts shall be accessible. There shall be no stems, stem guides, or spokes within the waterway. There shall be no springs to assist the valve operation.

C. Materials of Construction

1. The valve body shall be of cast iron ASTM A-126 with flanges conforming to the latest ANSI Standards. The valve shall be extra heavy construction throughout. The valve interior trim shall be bronze B-62 as well as the main valve operation.
2. The valve seats shall be easily renewable while no diaphragm shall be permitted within the main valve body.
3. All controls and piping shall be of noncorrosive construction.
4. A visual valve position indicator shall be provided for observing the valve piston position at any time.

D. Figure Number

1. The valve shall be as manufactured by GA Industries of Mars, Pennsylvania, _ inch size and shall be their Fig. 4500-d (globe), or equal.

E. Painting

1. After testing, the valve and parts shall be cleaned and all surfaces, except machined surfaces, shall receive 2 coats of manufacturer's standard shop coat paint. Machined surfaces shall receive a coating of water repellent, rust inhibitive compound.

F. Marking

1. Cast marking on valve bodies or covers shall show: manufacturer's name or trademark, valve size and figure number.

PART 3 EXECUTION

3.01 INSTALLATION (IN STRUCTURES, VAULTS AND BASINS)

A. Interior

1. All valves and appurtenances shall be installed at the locations shown on the Drawings. All necessary materials, parts, operators and gaskets shall be furnished and installed under this Contract.
2. All valves shall be installed with their operators located in such a plane that it will not interfere with pedestrian traffic.
3. Particular attention shall be paid to the location and orientation of all valve operators to provide an accessible installation. Should any valve be located with the operator inaccessible and simple re-orientation of the valve would make it accessible, the valve shall be moved at no cost to the OWNER.
4. All pipe and valves shall be supported by pipe hangers, concrete piers or other special supports as required to prevent undue stress being placed on the pipe, any fitting, valve or item of equipment. Equipment shall not be used to support pipe and fittings. The pipe shall be free of all openings in walls and slabs when the final position of the piping is attained and before sealing the annular space about the pipe.
5. The CONTRACTOR shall thoroughly clean the valves and fittings before starting erection. All scale, rust and dirt shall be removed by power brushing and/or solvent cleaning.

B. Exterior

1. Valves in ground shall be installed with operating stems vertical, unless otherwise shown on the Drawings or called for in these Specifications. Tops of operating nuts shall be no more than 30 inches below ground surface. Where valve operating nuts are more than 30 inches below tops of valve boxes, stems shall be provided to bring the operating nut to within 12 to 24 inches of box tops.
2. Valve boxes shall be accurately centered over valve operating nuts and the backfill shall be mechanically tamped about them, to prevent subsequent movement. Tops of boxes shall be flush with ground surface, paving, walk, or road surface.
3. The cost of the concrete collar, required about valve boxes, shall be included in the unit price for the valve and/or box.
4. All valves, valve stands, extension stems, and floor boxes, on or in structures, shall be installed as shown on the Drawings. Valve stands shall be set plumb and level and shall be anchored as shown on Drawings. Stands shall be properly centered over valve stems or operating

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mechanism. Any valve or stand found to be binding unduly shall be made to operate freely.

3.02 SHOP PAINTING

- A. Interior surfaces of all valves, the exterior surfaces of buried valves and miscellaneous piping appurtenances shall be given a shop finish of an asphalt varnish conforming to Federal Specification TT-V51e for Varnish Asphalt.
- B. The exterior surface of various parts of valves, operators, floorstands and miscellaneous piping shall be thoroughly cleaned of all scale, dirt, grease, or other foreign matter and thereafter on shop coat of an approved rust-inhibitive primer such as specified in Section 09900 shall be applied in accordance with the instructions of the paint manufacturer.
- C. Ferrous surfaces obviously not to be painted shall be given a shop coat of grease or other suitable rust-resistant coating.
- D. Field painting is included under Division 9.

3.03 INSPECTION AND TESTING

- A. The various pipelines in which the valves and appurtenances are to be installed are specified to be field tested. During these tests any defective valve or appurtenance shall be adjusted, removed and replaced, or otherwise made acceptable to the ENGINEER.
- B. Various regulating valves, strainer, or other appurtenances shall be tested to demonstrate their conformance with the specified operational capabilities and any deficiencies shall be corrected or the device replaced or otherwise made acceptable to the ENGINEER.

3.04 FIELD PAINTING

- A. Field Painting is specified in Section 09900.
- B. The CONTRACTOR and the equipment manufacturer shall coordinate shop paint and field paint to assure compatibility, in accordance with Section 09900.

3.05 TOOLS AND SPARE PARTS

- A. All special tools required for normal operation and maintenance shall be furnished by the valve manufacturer.

3.06 METHOD OF PAYMENT

- A. Payment for the complete system shall be included in the lump sum bid for the project, and shall include the furnishing of materials, equipment any parts and installation of all components to provide a completely functional and operational system.

END OF SECTION

SECTION 15107

**WATER METERS, SERVICE VALVES, STOPS
AND MISCELLANEOUS APPURTENANCES FOR WATER LINE PROJECTS**

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Furnish all labor, materials, and accessories to install equipment required by the Project, shown on the Drawings or specified herein, including the following:
 - 1. Zone meter installation

1.02 RELATED WORK

- A. Excavation, backfill, and grading are included in Division 2.
- B. Piping is included in the respective sections of Divisions 2 and 15.

1.03 QUALITY ASSURANCE

- A. All equipment and appurtenances shall be products of well-established firms who are fully experienced, reputable, and qualified in the manufacture of the particular equipment to be furnished. All materials of construction shall be of an acceptable type and shall be designated for the pressure and temperatures at which they are to be operated, for the materials they are to handle and for the use for which they are intended. The materials shall meet established technical standards of quality and strength necessary to assure safe installations and conform to applicable standards. The equipment shall be designed, constructed, and installed in accordance with the best practices and methods and shall comply with these Specifications as applicable.

1.04 SUBMITTALS

- A. Copies of all materials required to establish compliance with these Specifications shall be submitted in accordance with the provisions of Division 1, Section C-700.

PART 2 PRODUCTS

2.01 GENERAL

- A. All meters, valves, stops, and appurtenances shall be of the size shown on the Drawings and as far as possible all equipment of the same type shall be from one manufacturer.

2.02 SPECIALTIES AND ACCESSORIES

A. Water Meters

1. General

- a. Where OWNER has standardized on one particular make and model meter, and desires that they be furnished on this project.
 - (1) Insertion type zone meter to be FPI full insertion electromagnetic flow meter, or equal.
 - (2) Compound type zone meter to be Sensus OMNI T2 meter, or equal.

PART 3 EXECUTION

3.01 INSTALLATION

- A. All water meters, miscellaneous water service valves, stops, and appurtenances shall be installed in locations shown, true to alignment and rigidly supported. Any damage to the above items shall be repaired to the satisfaction of the ENGINEER before they are installed.
- B. All meters in boxes or vaults shall be located so that they may be easily read and serviced.
- C. After installation, all valves and appurtenances shall be tested at least 1 hour at the working pressure corresponding to the class of pipe, unless a different test pressure is specified. If any joint proves to be defective, it shall be repaired to the satisfaction of the ENGINEER.
- D. All materials shall be carefully inspected for defects in workmanship and materials; all debris and foreign material cleaned out of openings, etc.; all operating mechanisms operated to check their proper functioning, and all nuts and bolts checked for tightness. Equipment which does not operate easily, or is otherwise defective, shall be repaired or replaced at no additional cost to the OWNER.

3.02 INSPECTION AND TESTING

- A. The various pipelines in which the specified equipment is to be installed is specified to be field tested. During these tests any defective equipment shall be adjusted, removed and replaced, or otherwise made acceptable to the ENGINEER. Testing of pre-assembled setting shall be done prior to installation in the field. Testing parameters as covered in other sections shall apply.
- B. Various meters regulating valves, strainers, or other appurtenances shall be tested to demonstrate their conformance with the specified operational capabilities and any deficiencies shall be corrected or the device replaced or otherwise made acceptable to the ENGINEER.

END OF SECTION

SECTION 16010

BASIC ELECTRICAL REQUIREMENTS

PART 1 GENERAL

1.01 CONTRACTOR'S UNDERSTANDING

- A. Contractors bidding work under this Contract shall read and understand Division Zero and Division 1 - General Requirements. If any discrepancies are discovered between the Basic Electrical Requirements and General Requirements, the above mentioned documents shall overrule this section. The Basic Electrical Requirements are intended as a supplement to the above mentioned documents.
- B. The CONTRACTOR shall bid as outlined in the above mentioned Specifications and shall be governed by any alternates or unit prices called for in the form of proposal.
- C. Each CONTRACTOR bidding on the work included in these Specifications shall view the building site and carefully examine the Contract Drawings and Specifications, so that he/she may fully understand what is to be done, and to document existing conditions.

1.02 SCOPE

- A. Work included in this section of the Specifications includes the furnishing of all labor, material, tools, State approvals, utility connection fees, excavation, back-fill and other equipment necessary to install the electrical system as shown on the Contract Drawings and as specified herein.
- B. It also includes installation and connection of all electrical utilization equipment included in this Contract but furnished by other contractors or suppliers.
- C. It is the general intent that all motors shall be furnished with the particular object of equipment it drives, except where a new motor is to be provided for an item of existing equipment (a replacement motor), then it shall be provided under this division of the Specifications.
- D. The CONTRACTOR shall furnish and install all conduit, wire, disconnect switches and miscellaneous material to make all electrical connections to all items of utilization equipment or wiring devices except as otherwise specified.

- E. Equipment connections shall be made with flexible or rigid conduit as required. Controllers for motors, disconnect switches, and all control, protective and signal devices for motor circuits, except where such apparatus is furnished mounted and connected integrally with the motor driven equipment, shall be installed, connected and left in operating condition. The number and size of conductors between motors and control or protective apparatus shall be as required to obtain the type of operation described in these Specifications and/or by the Contract Drawings and/or as shown in manufacturer furnished, ENGINEER reviewed shop drawings.
- F. All devices and items of electrical equipment, including those shown on the Contract Drawings but not specifically mentioned in the Specifications or those mentioned in the Specifications but not shown on the Contract Drawings, are to be furnished under this section of the Specifications. Any such device or item of equipment, if not defined in quality, shall be equal to similar equipment and/or devices specified herein.
- G. All devices and items of equipment mentioned in this section of the Specifications whether electrical or not or whether furnished under this or other divisions of the Specifications, shall be installed under this division of the Specifications, unless specifically indicated otherwise.
- H. Where wiring diagrams are not shown on the Contract Drawings, they are to be provided by the supplier of the equipment served and such diagrams shall be adhered to except as herein modified.
- I. The following is a list of items that may not be defined clearly on the Contract Drawings or in other parts of these Specifications. The list is meant to be an aid to the CONTRACTOR and is not necessarily a complete list of all work to be performed under this Contract:
 - 1. Connect all motors and accessories furnished by equipment suppliers.
 - 2. Furnish, install, and connect all motor controls.
 - 3. Furnish, install, and connect lighting, indoor and outdoor.
 - 4. Furnish, install, and connect power and signal lines to all instrumentation equipment, and accessories.
 - 5. Furnish, install, and connect all electrical conduit, duct and cables.
 - 6. Furnish, install, and connect all telephone boxes, outlets, etc.
 - 7. Furnish, install, and connect all utility poles, line wire, and hardware.
 - 8. Furnish, install, and connect all power distribution equipment.
 - 9. Abandon and remove all existing wiring and materials not to be reused in the renovated plant, as shown on the Contract Drawings.
 - 10. Furnish and install standby power equipment.
 - 11. Furnish and install fire alarm control panel, devices, and wiring.
 - 12. Furnish and install security system equipment.
 - 13. Furnish and install communications system equipment.
- J. All raceways and wiring shall be firestopped where required by code and/or indicated in the Contract Drawings, as specified in Section 15305.

1.03 SHOP DRAWINGS, DESCRIPTIVE LITERATURE, INSTALLATION, OPERATION AND MAINTENANCE (IOM) INFORMATION

- A. Shop drawings including descriptive literature and/or installation, operation and maintenance instructions shall be submitted in the amount of 8 copies for this division. All shop drawings shall be submitted in loose-leaf three-ring cardboard reinforced vinyl binders.
- B. Shop drawings will be required on the following materials specified in this division:
 - 1. Conduit - all types and sizes, including liquidtight flexible.
 - 2. Boxes - all types and sizes.
 - 3. Coal tar epoxy paint.
 - 4. Wiring devices.
 - 5. Device plates.
 - 6. Metal framing system (Strut type channel).
 - 7. Conduit fittings, expansion joints, support hardware.
 - 8. Motor control equipment - including individually mounted items and pole top items.
 - 9. Power distribution equipment - including individually mounted items.
 - 10. Adjustable speed equipment and accessories.
 - 11. Miscellaneous spare parts and hardware, i.e., explosionproof hand lamps, terminators, lugs, stress cones, etc.
 - 12. Wire - all types and sizes.
 - 13. Light fixtures - all types.
 - 14. Wire markers, signs and labels.
 - 15. Lightning/transient suppressors.
 - 16. Motors.
 - 17. Transformers.
 - 18. Utility poles, crossarms, pole line hardware.
 - 19. Standby power equipment and accessories.
 - 20. Fire alarm system.
 - 21. Security system.
 - 22. Sound/Intercom systems.
- C. The ENGINEER reserves the right to make modifications to motor control and power distribution equipment ratings after shop drawing review, if the shop drawings are submitted prematurely (prematurely meaning submitted before all utilization equipment has been reviewed and accepted). Cost of modifications shall be the CONTRACTOR'S responsibility.

1.04 SYMBOLS AND ABBREVIATIONS

- A. The symbols and abbreviations generally follow standard electrical and architectural practice; however, exceptions to this shall be as shown on the Contract Drawings.

1.05 COORDINATION OF WORK WITH OTHER TRADES

- A. The CONTRACTOR shall coordinate the electrical work with that of other trades to ensure proper final location of all electrical equipment and/or connections. The CONTRACTOR shall verify door swings to see that light switches are located properly.

1.06 CODES

- A. The minimum standard for all work shall be the latest revision of the Kentucky Building Code (KBC), and the National Electrical Code (NEC). Whenever and wherever state and/or local laws or ordinances and/or regulations and/or the ENGINEER'S design require a higher standard than the current NEC or KBC, then these laws and/or regulations and/or the design shall be followed.
- B. Following is a list of other applicable Standards or Codes:

<u>Organization/Code/Standard</u>	<u>Abbreviated Title</u>
1. Kentucky Building Code	KBC
2. National Electrical Code	NEC
3. National Electrical Safety Code	NESC
4. Underwriters Laboratories, Inc.	UL
5. Factory Mutual System	FM
6. National Fire Protection Association	NFPA
7. National Electrical Manufacturers Association	NEMA
8. Occupational Safety and Health Administration	OSHA
9. Insulated Cable Engineers Association, Inc.	ICEA
10. Illuminating Engineering Society of North America	IES
11. Instrument Society of America	ISA
12. Institute of Electrical and Electronic Engineers, Inc.	IEEE
13. Certified Ballast Manufacturers Association	CBM
14. American National Standards Institute, Inc.	ANSI
15. Anti-Friction Bearing Manufacturers Association, Inc.	AFBMA
16. Joint Industry Council	JIC
17. American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.	ASHRAE
18. Federal Communications Commission	FCC

1.07 INSPECTION AND PERMITS

- A. Inspection of the electrical system on all construction projects is required. If the local government has appointed a state licensed inspector the CONTRACTOR shall be required to use that person to perform the inspections. If a locally

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mandated inspector does not exist, the CONTRACTOR shall select and hire a state licensed inspector, who has jurisdiction before any work is concealed.

- A. The CONTRACTOR shall contact the Department of Housing, Buildings, and Construction prior to starting work, and arrange for electrical inspections on this project. Inspections shall be performed at no cost to the CONTRACTOR. No work shall be concealed unless acceptable to the inspector.
- B. At the time of completion of the project, there shall be furnished to the OWNER a certificate of compliance, from the agency having jurisdiction pursuant to all electrical work performed. The ENGINEER shall also receive a photostatic copy.
- D. All permits necessary for the complete electrical system shall be obtained by the CONTRACTOR from the authorities governing such work. For further information, see Division 1.

1.08 STORAGE

- A. All work, equipment, and materials shall be protected against dirt, water, or other injury during the period of construction.
- B. Sensitive electrical equipment such as light fixtures, motor starters, controls, and panelboards, delivered to the job site, shall be protected against injury or corrosion due to atmospheric conditions or physical damage by other means. Protection is interpreted to mean that equipment shall be stored under roof, in a structure properly heated in cold weather and ventilated in hot weather. Provision shall be made to control the humidity in the storage area to 50 percent relative. The stored equipment shall be inspected periodically, and if it is found that the protection is inadequate, further protective measures shall be employed. Electrical equipment other than boxes and conduit shall not be installed until the structure is under roof with doors and windows installed.
- C. No light fixtures or device plates shall be hung or installed until after painting is completed; however, temporary lighting shall be provided by the CONTRACTOR.
- D. The CONTRACTOR shall not store submersible pump units in the wet well. If it is absolutely necessary to do so, the open power cable ends are to be suspended above the maximum flood elevation or maximum expected water level. If not stored in this manner, the CONTRACTOR may be called upon to replace the pump motors and cables with new units to ensure that water has not penetrated the cable and entered the motor housing.

1.09 MATERIALS

- A. All materials used shall be new and at least meet the minimum standards as established by the NEC and/or National Electrical Manufacturers Association (NEMA). All materials shall be UL listed for the application, where a listing exists. Additional requirements are found in Division 1. All equipment shall meet applicable FCC requirements and restrictions.
- B. The material and equipment described herein has been specified according to a particular trade name or make to set quality standards. However, each CONTRACTOR has the right to substitute other material and equipment in lieu of that specified, other than those specifically mentioned as matching or for standardization, providing such material and equipment meets all of the requirements of those specified and is accepted, in writing by the ENGINEER.
- C. The reuse of salvaged electrical equipment and/or wiring will not be permitted unless specified herein or indicated on the Contract Drawings.
- D. All salvaged or abandoned electrical materials shall become the property of the [OWNER] CONTRACTOR and shall be removed from the job site upon completion of the project, unless otherwise noted on the Contract Drawings or specified herein.
- E. The existing transformer located _____ to be removed shall be considered as PCB filled, and shall be handled as PCB filled. The transformer and contents shall be packaged, marked, transported, stored, handled, and disposed in accordance with the Toxic Substance Control Act, the Occupational Safety and Health Act, and all other pertinent federal, state, and local laws and regulations. Upon successful disposal of all PCB's and PCB articles, the OWNER shall receive a report to document the destruction of the transformer. A shipping manifest and all associated documentation shall also be provided. The CONTRACTOR shall be totally responsible for this work and the cost shall be part of the lump sum bid.
- F. Existing fluorescent light fixtures to be abandoned and removed this Contract, shall be assumed to be equipped with PCB filled ballasts. Light fixtures shall be disassembled and the ballast removed prior to salvage and/or disposal. Ballasts containing PCB's shall be disposed per requirements of the Toxic Substances Control Act (TSCA). Manifests shall be submitted to the OWNER documenting proper transportation and disposal of PCB contaminated ballasts.

1.10 ERRORS, CORRECTIONS AND/OR OMISSIONS

- A. Should a piece of utilization equipment be supplied of a different size or horsepower than shown on the Contract Drawings, the CONTRACTOR shall be responsible for installing the proper size wiring, conduit, starters, circuit breakers, etc., for proper operation of that unit and the complete electrical system at no extra cost to the OWNER.

- B. It is the intent of these Specifications to provide for an electrical system installation complete in every respect, to operate in the manner and under conditions as shown in these Specifications and on the Contract Drawings. The CONTRACTOR shall notify the ENGINEER, in writing, of any omission or error at least 10 days prior to opening of bids. In the event of the CONTRACTOR'S failure to give such notice, he/she may be required to correct work and/or furnish items omitted without additional cost. Further requirements on this subject may be found in the General Requirements, Division 1.
- C. Necessary changes or revisions in electrical work to meet any code or power company requirements shall be made by the CONTRACTOR without additional charge.

1.11 GUARANTEE AND WARRANTIES

- A. The CONTRACTOR shall guarantee all work including equipment, materials, and workmanship. This guarantee shall be against all defects of any of the above and shall run for a period of 1 year from the date of acceptance of the work, concurrent with the one year guarantee period designated for the general construction contract under which electrical work is performed. Date of acceptance shall be considered to be the date on which all "punchlist" items are completed ("punchlist" is defined to be the written listing of work that is incomplete or deficient that must be finished or replaced/repared before the CONTRACTOR receives final payment).
- B. Repair and maintenance for the guarantee period is the responsibility of the CONTRACTOR and shall include all repairs and maintenance other than that which is considered as routine. (That is replacement of lamps, oiling, greasing, etc.) The ENGINEER shall be the judge of what shall be considered as routine maintenance.
- C. Lamps shall bear the manufacturer's warranty.

1.12 TESTING

- A. After the wiring system is completed, and at such time as the ENGINEER may direct, the CONTRACTOR shall conduct an operating test for acceptance. The equipment shall be demonstrated to operate in accordance with the requirements of these Specifications and the Contract Drawings. The test shall be performed in the presence of the ENGINEER or his authorized representative. The CONTRACTOR shall furnish all instruments and personnel required for the tests, as well as the necessary electrical power.
- B. Before energizing the system, the CONTRACTOR shall check all connections and set all relays and instruments for proper operation. He shall obtain all necessary clearances, approvals, and instructions from the serving utility company prior to placing power on the equipment.
- C. Tests may be performed by the ENGINEER to confirm integrity of insulation on wiring circuits selected by the ENGINEER at random.

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- D. Cost of utilities for testing done prior to beneficial occupancy by the OWNER shall be borne by the CONTRACTOR.

1.13 CLEAN-UP

- A. Clean-up shall be completed as soon as possible after the electrical installation is complete. All light fixtures, outlets, switches, starters, motor control centers, disconnect switches and other electrical equipment shall be free of shipping tags, stickers, etc. All painted equipment shall be left free of scratches or other blemishes, such as splattered or blistered paint, etc. All light fixture diffusers shall be clean and the interior of all motor controls, etc., shall be free of dust, dirt, wire strippings, etc. Surplus material, rubbish and equipment resulting from the work shall be removed from the job site by the CONTRACTOR upon completion of the work.
- B. During construction, cover all OWNER equipment and furnishings subject to mechanical damage or contamination in any way.

1.14 CUTTING AND PATCHING

- A. Cutting and patching shall be held to an absolute minimum and such work shall be done only under the direction of the ENGINEER or OWNER. The CONTRACTOR shall be responsible for and shall pay for all openings that may be required in the floors or walls, and he shall be responsible for putting said surfaces back in their original condition. Every attempt shall be made to avoid cutting reinforcing steel bars when an opening is required in a reinforced concrete wall or floor slab.

1.15 EXCAVATION AND BACKFILL

A. Excavation

- 1. Excavation for conduits shall be of sufficient width to allow for proper jointing and alignment of the type conduit used. Conduit shall be bedded on original ground. Where conduit is in solid rock, a 6 inch earth cushion must be provided. Conduit shall be laid in straight lines between pull boxes and/or structures unless otherwise noted on the Contract Drawings. The cost of solid rock excavation shall be included in the lump sum bid with no extra pay allowed (unclassified).

B. Backfill

- 1. Backfill shall be hand placed, loose granular earth for a height of 6 inches above the top of the largest conduit. This material shall be free of rocks over 1/2 inches in diameter. Above this, large rocks may be included but must be mixed with sufficient earth to fill all voids.

1.16 SLEEVES, CHASES AND OPENINGS

- A. Sleeves shall be required at all points where exposed conduits pass through new concrete walls, slabs, or masonry walls. Sleeves that must be installed below grade or where subject to high water conditions must be installed watertight.
- B. Wiring chases shall be provided where shown on the Contract Drawings. The CONTRACTOR shall have the option of installing chases below surface mounted panelboards provided all structural requirements are met.
- C. It is the CONTRACTOR'S responsibility to leave openings to allow installation of the complete, operational electrical system. Openings required but not left shall be cut as outlined under cutting and patching. The CONTRACTOR shall coordinate all holes and other openings with necessary diameters for proper firestopping.

1.17 POWER COMPANY COORDINATION

- A. The CONTRACTOR is responsible for coordinating all activities onsite by the Power Company.
- B. All power company metering equipment shall be electrically located "upstream" of any manual/automatic transfer equipment on projects requiring onsite emergency power generation equipment.
- C. Any special provisions required by the serving electrical utility shall be as outlined on the Contract Drawings or as advised by the utility at the time of construction, and work required by these special provisions shall be executed with no extra cost to the OWNER.
- D. The plant is dual fed from 2 utility substations, with switches to transfer the plant source of power. These switches are owned and operated by the utility. All plant electrical equipment on the load side of these switches (at the meter) indicated on the Contract Drawings shall be furnished, installed, and connected by the CONTRACTOR.

1.18 TEMPORARY ELECTRICAL POWER

- A. The CONTRACTOR shall be responsible for providing temporary electrical power as required during the course of construction and shall remove temporary service equipment when no longer required. Temporary power is also addressed in Division 1

1.19 OVERCURRENT PROTECTION

- A. Circuit breakers or fused switches shall be the size and type as written herein and shown on the Contract Drawings. Any additional overcurrent protection required to maintain an equipment listing by an authority having jurisdiction shall be installed by the CONTRACTOR at no extra cost to the OWNER.

- B. The CONTRACTOR shall submit to the ENGINEER actual nameplate data from motors shipped to the site, stating motor identification as well as characteristics. Overload relay thermal unit selection tables shall accompany the motor data. The ENGINEER will select thermal unit sizes from this data for use by the CONTRACTOR in ordering proper thermal units.

1.20 TRAINING

- A. All manufacturers supplying equipment for this division shall provide the OWNER'S operations staff with training in the operation and maintenance on the equipment being furnished. The training shall be conducted at the project site by a qualified representative of the manufacturer.
- B. The cost of this training shall be included in the bid price.
- C. The required training shall consist of both classroom and hands-on situation. Classroom training shall include instruction on how the equipment works, its relationship to all accessories and other related units, detailed review of shop drawings, detailed presentation of written O&M instructions, troubleshooting and recordkeeping recommendations. Hands-on training shall include a review of the manufacturer's O&M instructions, check out of each operator to identifying key elements of the equipment, tear down as appropriate, calibration, adjustment, greasing and oiling points, and operating manipulations of all electrical and mechanical controls.
- D. The training shall be scheduled through the CONTRACTOR with the OWNER. The timing of the training shall closely coincide with the startup of the equipment, but no training shall be conducted until the equipment is operational.
- E. The minimum number of training hours to be provided by manufacturers supplying equipment on this project shall be in accordance with the following table:

<u>Item</u>	<u>Training Hours</u>	
	<u>Classroom</u>	<u>Hands-on</u>
Fire Alarm System	1	1
Standby Power System and Accessories	2	2
Sound System	2	2
Variable Speed Systems	3	3
Security System	1	1
Automatic Level/Pressure Control System	1	1
Solid State Motor Control	2	2
Automatic Power Factor Controller	1	1

- F. At least 60 days prior to the training the manufacturer shall submit through the CONTRACTOR to the ENGINEER an outline of the training proposed for the ENGINEER'S review and concurrence.

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G. The OWNER reserves the right to videotape all training sessions.

1.21 AS BUILT DRAWINGS

A. The CONTRACTOR shall maintain 1 set of the Contract Drawings on the job in good condition for examination at all times. The CONTRACTOR'S qualified representative shall enter upon these drawings, from day to day, the actual "as-built" record of construction and/or alteration progress. Entries and notes shall be made in a neat and legible manner and these drawings delivered to the ENGINEER after completion of the construction, for use in preparation of Record Drawings.

1.22 MAINTAINING CONTINUOUS ELECTRICAL SYSTEM AND SERVICE

- A. Existing service(s) continuity shall be maintained at all times. In no way shall the installation and/or alteration of the electrical work interfere with or stop the normal operation of the existing facilities, except when prior arrangements have been made.
- B. When additions and taps to existing service(s) require electrical outages of duration in excess of a few minutes, arrangements shall be made in advance for such outages. All outages shall be held to an acceptable minimum with none exceeding 8 hours continuous duration. If necessary, cuts shall be performed on premium time. If performed at night, requiring a general outage, the CONTRACTOR shall furnish an auxiliary source of light and power as required. Under no circumstances shall an electrical outage of any duration be initiated until the OWNER and ENGINEER have concurred, and as far as possible in advance.

1.23 GROUNDING AND BONDING

A. All metallic conduit, cabinets, equipment and service shall be grounded in accordance with the latest issue of the National Electrical Code. All supporting framework and other metal or metal clad equipment or materials which are in contact with electrical conduit, cable and/or enclosures, shall be properly grounded to meet the code requirements.

1.24 RELATED SPECIFICATION DIVISIONS

A. The following divisions contain Specifications on utilization equipment, equipment accessories, and procedures related to execution of the electrical work, and are included here for the CONTRACTOR'S information. Bids shall still be based on complete Contract Documents.

Division 0 - Bidding Requirements, Contract Forms, and
Conditions of the Contract

Division 1 - General Requirements

Division 2 - Sitework

Division 3 - Concrete

Division 5 - Metals

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Division 8 - Doors and Windows
Division 9 - Finishes
Division 10 - Specialties
Division 11 - Equipment
Division 12 - Furnishings
Division 13 - Special Construction
Division 14 - Conveying Systems
Division 15 - Mechanical

1.25 SERVICE ENTRANCE

- A. Conductors and terminations for service entrances shall be furnished and installed by the CONTRACTOR. Voltage, phase, and number of wires shall be as shown on the Drawings. Clearances for overhead entrance wires shall be per power company, NEC, and NESC requirements.
- B. Any details not shown on the Drawings or written in the Specifications pertaining to the service entrance shall be per power company requirements. It is the CONTRACTOR'S responsibility to contact the utility prior to bidding and obtain any special requirements or costs they will be imposing. Those costs shall be included in the bid.
- C. On underground service entrances from pad mounted transformers, the CONTRACTOR shall be responsible for furnishing and installing all primary, secondary, and metering conduits, as well as secondary service/metering conductors. The CONTRACTOR shall be responsible for furnishing pull wires in primary conduits for use by the power company. The CONTRACTOR shall be responsible for fabricating the required concrete pad that the transformer will be mounted on. The CONTRACTOR shall also mount the meter base furnished by the power company.

1.26 ELECTRIC CLOCKS

- A. Provide General Electric, Westinghouse, Electric Time Company, or equal electric clocks for mounting where indicated on the Drawings. Clocks shall be powered by standard alkaline dry cell batteries furnished with the clock, which shall have a 12" dial face, white background, with black numerals. Clocks shall have a sweep second hand and black plastic housing with clear lense over the hands.

1.27 CONTRACTOR LICENSING

- A. The CONTRACTOR performing electrical work on this project shall be locally licensed, if required by local law or ordinance. If the CONTRACTOR has passed the State test, it may not be necessary to meet local testing requirements. It shall be the CONTRACTOR's responsibility to investigate these requirements.

1.28 ANCHORING/MOUNTING

- A. Electrical conduits and/or equipment shall be rigidly supported. Anchors used shall be metallic expansion type, or if appropriate to prevent spalling concrete, epoxy set type. Plastic or explosive type anchors are prohibited.
- B. Since this project is in Seismic Zone <1 - 2>, the CONTRACTOR shall be sure that all supports are consistent with the KBC requirements in this regard.

1.29 ELECTRICAL COMPONENT MOUNTING HEIGHTS

- A. Unless otherwise indicated, mounting height for components shall be as defined herein. In cases of conflicts with architectural or structural aspects, the components may be relocated. If an indicated height conflicts with a code requirement, the code shall govern.
- B. Mounting heights are given from finished floor elevation to the centerline of the component, unless otherwise noted.

Component	Height	Comments
1. Wall type light switch	4'-0"	To top of box
2. Low wall outlet	16"	To bottom
3. Medium height wall outlet	4'-0"	
4. Medium height telephone outlet	4'-0"	
5. Highwall outlet or fixture	7'-0"	
6. Wall clock outlet	8'-0" Max.	Top of clock 1" below ceiling
7. Wall type buzzers, horns, etc.	8'-0" Max.	Top 2" below ceiling
8. Wall type exit signs	8'-0" Max.	Top of sign 2" below ceiling
9. Fire alarm manual pull station	40"	To bottom of pull station
10. Wall mount speaker	8'-0" Max.	Top of speaker 1" below ceiling
11. Wall mount stair landing light	7'-6"	To bottom
12. Pushbutton or control stations	4'-0"	
13. Top of panelboards or control panels	6'-6"	Maximum (except for handi-capped areas)
14. Top of telephone back boards	6'-6"	Maximum
15. Top of switch handle on motor control center	6'-6"	Maximum
16. Top of local motor controller	6'-0"	Maximum
17. Top of local disconnect switch	6'-0"	Maximum
18. Wall mounted outlets above a laboratory counter	4'-2"	
19. Wall telephone	4'-6"	Max. to top of phone
20. Wall outlets over workbench	3'-6"	
21. Wall mount exterior light fixtures	8'-0"	
22. Wall mount emergency light fixtures	6'-6"	Max. to test button
23. Wall thermostats	4'-0"	To top of thermostat
24. Score Board outlet		Conceal behind scoreboard

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25. Classroom telephone wall box	40"	To bottom of box
26. Receptacles & cable outlet for wall hung TV	72"	
27. Fire alarm horn/strobe units	80"	Max. 6" below ceiling which- ever is lower

PART 2 PRODUCTS

Not applicable.

PART 3 EXECUTION

Not applicable.

END OF SECTION

SECTION 16020

GENERAL ELECTRICAL REQUIREMENTS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Provide all labor, material, tools, approvals, excavation, backfill, and other services and equipment necessary to install the electrical system as shown on the Contract Drawings and as specified herein.
- B. Each Contractor bidding on the work included in these Specifications shall view the building site and carefully examine the contract Drawings and Specifications, so that he/she may fully understand what is to be done, and to document existing conditions.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Contractors bidding work under this Contract shall read and understand Division Zero and Division 1 - General Requirements. If any discrepancies are discovered between this Division and the General Requirements, the above-mentioned documents shall overrule this section.
- B. Division 17 - Instrumentation/SCADA

1.03 SUBMITTALS

- A. Provide shop drawings including descriptive literature and/or installation, operation and maintenance instructions. Shop drawings shall be submitted for all equipment proposed to be furnished under this Division.
- B. Electrical submittals shall be submitted after the pumping/process equipment has been approved. Otherwise the CONTRACTOR is responsible for any changes and costs incurred as a result of changes necessary to the electrical equipment.
- C. Shop Drawings shall be clearly marked and or highlighted as to which product, type, option, etc. is being submitted.
- D. Where wiring diagrams are not shown on the Contract Drawings, they are to be provided by the supplier of the equipment served.
- E. O&M manuals are required and shall consist of approved shop drawings, manufacturer O&M instructions, and test reports.

1.04 SYMBOLS AND ABBREVIATIONS

- A. The symbols and abbreviations generally follow standard electrical practice, however, exceptions to this shall be as shown on the Contract Drawings.

1.05 COORDINATION WITH OTHER TRADES

- A. The CONTRACTOR shall coordinate the electrical work with that of other trades to ensure proper final location of all electrical equipment and/or connections.

1.06 CODES

- A. Comply with the latest revision of the following codes:

1.	Kentucky Building Code	KBC
2.	National Electrical Code	NEC
3.	National Electrical Safety Code	NESC
4.	Underwriters Laboratories, Inc.	UL
5.	National Fire Protection Association	NFPA
6.	National Electrical Manufacturers Association	NEMA
7.	Occupational Safety and Health Administration	OSHA
8.	Insulated Cable Engineers Association	ICEA
9.	Instrument Society of America	ISA
10.	American National Standards Institute, Inc.	ANSI
11.	Anti-Friction Bearing Manufacturers Association, Inc.	AFBMA
12.	Federal Communications Commission	FCC

- B. Comply with any other applicable federal, state, or local laws and ordinances.
- C. Where the ENGINEER's design requires a higher standard than the applicable code, the ENGINEER's design shall be followed.

1.07 INSPECTIONS AND PERMITS

- A. Inspection of the electrical system on all construction projects is required. If the local government has appointed a state licensed inspector, the CONTRACTOR shall be required to use that person to perform the inspections. If a locally mandated inspector does not exist, the CONTRACTOR shall select and hire a state licensed inspector, who has jurisdiction before any work is concealed.
- B. At the time of completion of the project, there shall be furnished to the OWNER and ENGINEER a certificate of compliance, from the agency having jurisdiction pursuant to all electrical work performed.
- C. All permits necessary for the complete electrical system shall be obtained by the CONTRACTOR from the authorities governing such work.

1.08 STORAGE

- A. All work, equipment, and materials shall be protected against dirt, water, or other injury during the period of construction. Complete replacement with new equipment is required for any damaged materials.
- B. Sensitive electrical equipment such as controls, transmitters, etc., delivered to the jobsite, shall be protected against injury or corrosion due to atmospheric conditions or physical damage by other means. Protection is interpreted to mean that equipment shall be stored under roof, in a structure properly heated in cold weather and ventilated in hot weather. Provision shall be made to control the humidity in the storage area at 50 percent relative. The stored equipment shall be inspected periodically, and if it is found that the protection is inadequate, further protective measures shall be employed.

1.09 MATERIALS

- A. All materials used shall be new and at least meeting the minimum standards as established by the NEC and/or National Electrical Manufacturers Association. All materials shall be UL listed for the application where a listing exists. All equipment shall meet applicable FCC requirements and restrictions.
- B. The material and equipment described herein has been specified according to a particular trade name or make to set quality standards. However, each CONTRACTOR has the right to substitute other material and equipment in lieu of that specified, other than those specifically mentioned at matching or for standardization, providing such material and equipment meets all of the requirements of those specified and is accepted, in writing by the ENGINEER.
- C. The reuse of salvaged electrical equipment and/or wiring will not be permitted unless specified herein or indicated on the Contract Drawings.
- D. All salvaged or abandoned electrical materials shall become the property of the CONTRACTOR and shall be removed from the job site upon completion of the project, unless otherwise noted on the Contract Drawings or specified herein.

1.10 ERRORS, CORRECTIONS, AND/OR OMISSIONS

- A. Should a piece of utilization equipment be supplied of a different size or horsepower than shown on the Contract Drawings, the CONTRACTOR shall be responsible for installing the proper size wiring, conduit, starters, circuit breakers, etc., for proper operation of that unit and the complete electrical system at no extra cost to the OWNER.
- B. It is the intent of these Specifications to provide for an electrical system installation complete in every respect, to operate in the manner and under conditions as shown in these Specifications and on the Contract Drawings. The CONTRACTOR shall notify the ENGINEER, in writing, of any omission or error at least 10 days prior to opening of bids. In the event of the CONTRACTOR's failure to give such notice, he/she may be required to correct work and/or furnish items omitted without additional cost.

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- C. Necessary changes or revisions in electrical work to meet any code or power company requirement shall be made by the CONTRACTOR without additional charge.

1.11 GUARANTEES AND WARRANTIES

- A. The CONTRACTOR shall guarantee all work including equipment, materials, and workmanship. This guarantee shall be against all defects of any of the above and shall run for a period of 1 year from the date of acceptance of the work, concurrent with the one-year guarantee period designated for the general construction contract under which electrical work is performed.
- B. Repair and maintenance for the guarantee period is the responsibility of the CONTRACTOR and shall include all repairs and maintenance other than that which is considered as routine. (That is oiling, greasing, etc.) The ENGINEER shall be the judge of what shall be considered as routine maintenance.

1.12 TESTING

- A. After the wiring system is complete, and at such time as the ENGINEER may direct, the CONTRACTOR shall conduct an operating test for acceptance. The equipment shall be demonstrated to operate in accordance with the requirements of these Specifications and the Contract Drawings. The test shall be performed in the presence of the ENGINEER or his authorized representative. The CONTRACTOR shall furnish all instruments and personnel required for the tests, as well as the necessary electrical power.
- B. Before energizing the system, the CONTRACTOR shall check all connections and set all relays and instruments for proper operation.

1.13 CLEANUP

- A. Cleanup shall be performed as soon as possible after the electrical installation is complete. All control panels, switches, etc., shall be free from tags, stickers, etc. All painted enclosures shall be free from scratches or splattered paint. The interior of all enclosures shall be clean from dust, wire strippings, etc. Surplus material, rubbish, and equipment shall be removed from the jobsite upon completion of the work.
- B. During construction, cover all OWNER equipment subject to damage.

1.14 EXCAVATION AND BACKFILL

- A. Excavation for conduits shall be of sufficient width to allow for proper jointing and alignment of the type conduit used. Conduit shall be bedded on original ground unless indicated otherwise on the Drawings. Where conduit is in solid rock, a 6-inch earth cushion must be provided. Conduit shall be laid in straight lines between pull boxes and/or structures unless otherwise notes on the Contract Drawings. The cost of solid rock excavation shall be included in the lump sum bid.

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- B. Backfill shall be hand placed, loose granular earth for a height of 6 inches above the top of the largest conduit. This material shall be free of rocks over ½ inches in diameter. Above this, rocks up to 3” diameter may be included but must be mixed with sufficient earth to fill all voids.

1.15 POWER COMPANY COORDINATION

- A. Not applicable on this project.

1.16 TEMPORARY ELECTRICAL POWER

- A. The CONTRACTOR shall be responsible for providing temporary electrical power as required during the course of construction and shall remove the temporary service equipment when no longer required.

1.17 OVERCURRENT PROTECTION

- A. Overcurrent protection required to maintain an equipment listing or a requirement by an authority having jurisdiction shall be installed by the CONTRACTOR.

1.18 TRAINING

- A. Not applicable for the electrical system on this project.

1.19 RECORD DRAWINGS

- A. The CONTRACTOR shall maintain 1 set of the Contract Drawings on the job in good condition for examination at all times. The CONTRACTOR's qualified representative shall enter upon these Drawings, from day to day, the actual “as-built” record of construction and/or alteration progress. Entries and notes shall be made in a neat and legible manner and these Drawings delivered to the ENGINEER after completion of the construction, for use in preparation of Record Drawings. Underground lines must be dimensioned to permanent structures.

1.20 MAINTAINING CONTINUOUS ELECTRICAL SYSTEM AND SERVICE

- A. Existing service continuity shall be maintained at all times. In no way shall be installation and/or alteration of the electrical work interfere with or stop the normal operation of the existing facilities, except where prior arrangements have been made.

1.21 GROUNDING AND BONDING

- A. All metallic conduit, cabinets, equipment, and service shall be grounded in accordance with NEC requirements. All supporting framework in contact with electrical conduit, cable, and/or enclosures, shall be properly grounded.

1.22 SERVICE ENTRANCE

- A. Not applicable on this project.

1.23 CONTRACTOR LICENSING

- A. The CONTRACTOR performing the electrical work on this project shall be a licensed electrical contractor in the State of Kentucky.

1.24 ELECTRICAL COMPONENT MOUNTING HEIGHTS

- A. Mounting heights shall be as shown on the Contract Drawings. Operators and control devices shall not be mounted higher than 6'6" above finished floor or grade.

1.25 EQUIPMENT IDENTIFICATION

- A. All starters, feeder units, disconnects, instruments, etc., shall be marked to indicate the motors, circuit, they control or monitor. Marking is to be done with engraved laminated nameplates. Nameplates shall be fastened to equipment with stainless steel screws, one each side. In no way shall the installation of the mounting screws void the NEMA enclosure rating of the equipment in which they are installed. If there are more than one number, the equipment shall be numbered consecutively and labeled as such. Nameplate background color shall be white, with black engraved letters.
- B. Disconnect switches, control panels, transfer switches, panelboards etc. shall be labeled with orange OSHA-compliant vinyl self-adhesive signs that list the maximum voltage contained inside the cabinet or panel.

1.26 EQUIPMENT CONFIGURATION/PROGRAMMING

- A. Any equipment furnished by the CONTRACTOR is required to be configured or programmed by the CONTRACTOR or his subcontractor/vendor. Any necessary studies or engineering necessary to configure or program this equipment shall be provided by the CONTRACTOR as needed to place the equipment into successful operation. ENGINEER or OWNER will not be responsible for equipment configuration or programming.
- B. If a manufacturer or manufacturer's representative is required to startup/commission the equipment in these Specifications, then it is required that the CONTRACTOR provide the services of the manufacturer to configure/program the equipment. This includes the provision of any necessary studies or engineering necessary for the configuration/programming.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Raceways
 - 1. Rigid Aluminum Conduit - "Allied," "Wheatland," "Indalex," or equal.
 - 2. PVC Conduit - "Allied," "Carlson," "Cantex," or equal.
 - 3. Liquidtight Flexible Metal Conduit - "Allied," "Anaconda," or equal.

B. Wires and Cables

1. Building Wire (Types THWN and THW) - "Collyer," "Rome," "American," "Carol," or equal.
2. Instrumentation Cables - "Eaton-Dekoron," "Manhatton," "American," "Belden," "Okonite," or equal.

C. Boxes - "Appleton," "Crouse-Hinds," "Hoffman," "Rittal," or equal.

D. Wire Connections and Connecting Devices

1. Termination and Splice Connectors - "3M Scotchlok," "Anderson," "T&B," "Burndy," or equal.
2. Connectors, Lugs, etc. - "T&B," "Anderson," "Burndy," or equal.

E. Grounding Equipment - "Cadweld," "ITT Blackburn," "Copperweld Bimetallics Group," "Cathodic Engineering Equipment Co.," or equal.

F. Motor Control Equipment - "Square D," "Allen Bradley," "Eaton Cutler-Hammer," "G.E.," or equal.

2.02 MATERIALS

A. Conduit and Fittings

1. Aluminum Conduit
 - a. Aluminum conduit shall be extruded from alloy 6063 and shall be the rigid type, non-toxic, corrosion resistant, and non-staining. It shall be manufactured per UL standards as well as listed/labeled by same.
 - b. Fittings, boxes, and accessories used in conjunction with aluminum conduit shall be die cast, copper free type. They shall be resistant to both chemical and galvanic corrosion. All covers shall have neoprene gaskets. Aluminum fittings containing more than 0.4 percent copper are prohibited.
 - c. Aluminum conduit proposed for concrete slab or underground applications shall be UL listed for the purpose and factory pre-coated. Corrosion-resistant taping is allowed for stubouts out of the ground.
2. Polyvinylchloride (PVC) Conduit - PVC conduit and fittings shall be Schedule 80 heavy wall and UL listed. Expansion joints shall be used as recommended by the manufacturer in published literature. PVC systems shall be 90 degrees Celsius minimum UL rated, have a tensile strength of 7,000 psi @ 73.4 degrees Fahrenheit, flexural strength of 11,000 psi and compressive strength of 8,000 psi.

3. Liquidtight Flexible Conduit - Flexible conduit shall be the metallic liquidtight type UA constructed from flexibly or spirally wound electro-galvanized steel with light gray PVC coating. Connections shall be by means of copper-free aluminum fittings.
4. Locknuts shall be bonding type with sharp edges for digging into the metal wall of an enclosure. Myer-style aluminum hubs shall be used rather than locknuts for all NEMA 4X and exterior penetrations.
5. Bushings shall be metallic insulating type, consisting of an insulating insert molded or locked into the metallic body of the fitting. Bushings made entirely of metal or nonmetallic material are not permitted.
6. Corrosion-Protection Tape: The corrosion protection tape shall be Scotchrap 51 or equal with 20mil thickness PVC tape and high-tack adhesive. Degreasing and priming of the conduit is required prior to applying the corrosion-protection tape.

B. Conductors (600 Volts and Below)

1. All conductors shall be insulated so that they are rated at 600 volts.
2. Insulated conductors shall be minimum #12 AWG for power or #14 AWG for control and shall be stranded.
3. All conductors brought to the job site shall be new and unused and where no special factory cut lengths are involved, shall be delivered to the job site in standard coils. CONTRACTOR shall provide verification to the ENGINEER of wire condition before wire is installed.
4. All conductors shall be soft drawn, 98% conductivity copper conforming to the latest ASTM Specifications and the requirements of the National Electrical Code.
5. Conductors shall be insulated with type THWN insulation and all conduits shown on the Drawings are sized accordingly.

C. Instrumentation Cable - Instrumentation cable shall have individually shielded and twisted pairs or triads. Conductors shall be tinned copper, and the cable shall include a separate drain conductor. Voltage rating shall be 600 Volt. Conductor colors shall be black and white. Shielding shall be a combination braid/foil with 100% coverage. Insulation shall be PVC or XLPE. Conductors shall be #18AWG minimum, but no smaller than the size indicated on the Drawings. Insulation shall be polyethylene, rated for underground wet location use, and resistance at 68 degrees Fahrenheit between conductors and between conductors and ground should be at least 500 megohms per 1,000 feet.

D. Submersible pump power cables shall be of the extra hard usage type suitable for submerged duty and able to withstand common corrosive agents found in water and wastewater. They shall be provided with high grade non-magnetic stainless steel strain relief cable grips installed at the pump end and high grade

non-magnetic stainless steel support cable grips anchored to the wet well structure where they enter the wetwell. The support grips shall be the heavy-duty type stainless 302, 304, or 316 as manufactured by Hubbell/Bryant or equal.

E. Boxes and Enclosures

1. Junction boxes for outdoors surface mounting shall be stainless NEMA 4X, with at least 5 ½ full threads for each conduit opening, and shall be suitable for surface mounting as required with drilled external, cast mounting extensions. Box covers shall be hinged or cap screw retained as required, of the same material as the box and provided with stainless steel hardware.

F. Wire Connections and Connecting Devices

1. Terminals and splice connectors from #22 to #4 AWG shall be compression type with barrels to provide maximum conductor contact and tensile strength. Performance, construction, and materials shall be in conformance with UL standards for wire connectors and rated for 600 Volts and 105 degrees Celsius.
2. Lugs and splice connectors from #6 AWG to 1000 kcmil shall be compression types with barrels to provide maximum conductor contact and tensile strength. They shall be manufactured from high conductivity copper and entirely tin plated. They shall be crimped with standard industry tooling. The lugs and connectors must have a current carrying capacity equal to the conductors for which they are rated and must also meet all UL requirements. All lugs above #4/0 shall be 2-hole lugs with NEMA spacing. The lugs shall be rated for operation through 35 KV. The lugs shall be of closed end construction to exclude moisture migration into the cable conductor.

G. Wiring Devices

1. General - All receptacles shall be heavy duty specification grade duplex receptacle, NEMA 5-20R, 20A, 125V, 3-wire. Provide weatherproof cover where indicated on the Drawings.
2. Duplex outlet (interior) - "Hubbell" catalog series 5362, or equal.
3. Corrosion Resistant Duplex Outlet - Hubbell catalog series 53CM62, or equal. Duplex receptacle as specified above with marine-grade corrosion resistance. Provide weather-proof while-in-use cover.
4. Ground fault interrupting receptacles shall be required where shown on the Contract Drawings, and shall be indicated by the abbreviation "GFI" beside the circuit symbol on the Contract Drawings. They shall be rated 20 amps (125 volts) and shall be of the duplex, feed through type, capable of protecting all downstream receptacles on the same circuit. They shall be UL listed and shall comply with UL 943 and interrupt the

current between 4-6 milliamps of ground fault leakage. Appropriate plates shall be furnished and installed. The 20 ampere rating shall apply not only to device internals but to the faceplate as well. Receptacle shall be Hubbell GFI 5352, or equal.

5. Weatherproof covers shall be Hubbell WP series, Thomas and Betts 2CKG, or equal. They shall be weatherproof-in-use with cast aluminum construction. Mounting screws shall be stainless. Protection shall be NEMA 3R.
6. General - Switches shall be industrial grades, 120/227VAC, 20A
 - a. Single pole (exterior) - "Hubbell" cat. no. 1222-gray, or equal.
 - b. Weatherproof switch covers shall be Hubbell 7420 series, or equal, with stainless mounting screws, cast aluminum construction and wet location rating.

H. Panelboards

1. Shall be UL listed with copper bussing.
2. Enclosure shall be NEMA 3R stainless steel, or NEMA 4X stainless steel.
3. Circuit breakers shall be bolt-in.
4. Panelboards rated for 120/208V service shall have an interrupting capacity of not less than 10,000A, RMS symmetrical.
5. Panelboards rated for 480V service shall have an interrupting capacity of not less than 14,000A, RMS symmetrical.
6. Panelboards scheduled for use as service equipment shall be service-entrance listed and shall have an integral TVSS surge suppressor.

I. Motors

1. Ratings and Electrical Characteristics
 - a. Time: All motors shall be rated for continuous duty.
 - b. Temperature: Maximum ambient temperature of 40 degrees Celsius and an altitude of 3,300 feet or less, according to service factor and insulation class employed.
 - c. Voltage: All single-phase motors shall be rated 115/208/230 volts and all polyphase motor 230/460 volts. All motors shall be capable of normal operation at balanced voltages in the range of + 10 percent from rated winding voltage.

- d. Frequency: All AC motors shall be rated for 60 hz. operation. All motors shall be capable of normal operation at frequencies 5 percent above or below the normal rating of 60 hz.
 - e. Locked Rotor Current: Locked rotor current shall be in accordance with NEMA standards.
 - f. Efficiency: NEMA premium efficiency is required.
 - g. Speed: Slip shall not exceed 4 percent at full load.
 - h. Service Factor: The service factor shall be 1.15 unless requirements of the driven load necessitate a higher service factor.
 - i. Insulation Class: Insulation shall be NEMA Class F or Class H. All motors shall be inverter-duty and suitable for operation on variable frequency drives.
 - j. Design Level: Motors shall be NEMA design B, except as otherwise noted.
 - k. Enclosure: Motors for process equipment 2 HP and smaller shall be totally enclosed. All motors for process equipment larger than 2 HP shall be TEFC (totally enclosed fan cooled), suitable for use indoors or outdoors, except as otherwise noted. Totally enclosed non-ventilated (or air-over) motors may be used for ventilators and other auxiliary equipment that by virtue of the load are provided with more than adequate ventilation. ODP (open dripproof) motors may be used for ventilators where the motor is outside the air stream yet still protected from the weather. Submersible motors shall be air or oil filled and of watertight construction. Motors used in classified atmospheres shall be properly rated for that hazard.
 - l. Winding Overtemperature Sensors: All motors 15 horsepower and over shall be provided with motor winding thermostats. The devices shall be hermetically sealed, snap-acting thermal switches, actuated by a thermally responsive bi-metallic disk. A minimum of 1 per phase is required, with switches wired into the control circuit of the starter to provide de-energization should overheating threaten. All submersible motors shall be equipped with motor winding thermostats.
 - m. All submersible motors shall be equipped to detect seal failure.
2. Tests, Nameplates and Shop Drawings:
- a. Test: Tests shall be required on integral horsepower motors only. A factory certified test report of "electrically duplicate motors previously tested" shall be supplied on all motors under 200 horsepower. The test shall be certified by the factory and shall contain a statement to the effect that complete tests affirm the

guaranteed characteristics published in the manufacturer's catalogs or descriptive literature. Tests shall be in accordance with IEEE test procedures.

- b. Nameplates: Each motor shall have a permanently affixed nameplate of brass, stainless steel, or other metal of durability and corrosion resistance. The data contained on the nameplate shall be in accordance with NEMA standards. Provide a spare nameplate with each motor and mount the nameplate in the starter cabinet. A Brady label with equivalent nameplate information will be accepted in lieu of an actual spare nameplate.

3. Efficiency Requirements

- a. The following motor full load efficiency requirements shall be met as a minimum for totally enclosed 3 phase integral horsepower motors (per NEMA test Methods):

Horsepower	Nominal 3600 RPM (Minimum %)	Nominal 1800 RPM (Minimum %)	Nominal 1200 RPM (Minimum %)
1	75.5	82.5	80.0
1.5	82.5	84.0	85.5
2	84	84.0	86.5
3	85.5	87.5	87.5
5	87.5	87.5	87.5
7.5	88.5	89.5	89.5
10	89.5	89.5	89.5
15	90.2	91.0	90.2
20	90.2	91.0	90.2
25	91.0	92.4	91.7
30	91.0	92.4	91.7
40	91.7	93.0	93.0
50	92.4	93.0	93.0
60	93.0	93.6	93.6
75	93.0	94.1	93.6
100	93.6	94.5	94.1
125	94.5	94.5	94.1
150	94.5	95.0	95.0
200	95.0	95.0	95.0

- b. Motors shall be energy efficient and shall be documented in the shop drawings submittal in sufficient detail to allow the ENGINEER complete review of what is offered. Motors shall meet NEMA premium efficiency standards.

J. Surge Protection Devices

1. Secondary power arrestors shall be hermetically sealed with pre-ionized spark gap. The unit shall be capable of repeated overvoltages without significant change in breakdown level or insulation resistance. The arrestor shall be capable of mounting in any position and shall be capable of mounting through a box knockout with standard locknuts, and shall be weatherproof. Capacitance shall be less than 50 picofarads, and insulation resistance shall be at least 100 megohms. Maximum arc-over with 10 KV/micro second rise time pulse applied shall be 1,500 volts. The arrestor shall be capable of withstanding repeated application of 10 kiloampere current surges and extinguish power-follow current in ½ cycle or less. Maximum voltage between terminals shall be 2,500 volts when conducting 10 KA current surges. Operating temperature range shall be -40 degrees Celsius to +75 degrees.
2. Distribution Equipment TVSS
 - a. The TVSS shall be suitable for application in category C3 environments as described in ANSI/IEEE C62.41. The TVSS shall be of parallel design and provide protection, line to ground, neutral to ground, and line to neutral for wye or delta distribution systems. The TVSS shall be compatible with the indicated electrical system, voltage, current and distribution configuration.
 - b. TVSS shall comply with ANSI/IEEE C62.1, C62.41, and C62.45. The TVSS shall be capable of surviving 1,000 sequential category C3 surges without failure following IEEE test procedures established in C62.45.
 - c. The TVSS shall have LED indicators that provide indication of suppression failure. It shall also have a surge counter. It shall also have a relay contact that provides remote indication of surge protection failure.
 - d. The TVSS maximum continuous operating voltage (MCOV) shall be capable of sustaining 110 percent of the nominal RMS voltage continuously without degradation.
 - e. TVSS shall have surge current capacity of 80,000 amps minimum per mode with a response time no greater than 5 nanoseconds, for any of the individual protection modes, under laboratory conditions with optimum lead lengths.
 - f. The TVSS UL 1449 surge suppression rating for any suppression mode shall not exceed:

Electrical System Voltage	Phases	UL 1449 Surge Suppression Ratings
120/240	1	330V
120/240	3	330V
120/208	3	330V
208	3	700V
277/480	3	700V
480	3	1500V

K. Safety Switches

1. All safety switches shall be heavy-duty load break type with a quick-make, quick-break, switch mechanism. The switches shall be fused or unfused as indicated on the Drawings. The handle position shall give visual indication of open and closed switch position. Padlocking capability shall be provided for locking the switch in the "OFF" (open) position. Switches are required to be UL98 listed and shall comply with NEMA KS-1 latest version.
2. The switch jaws shall be multi-spring type for positive grip of the switch blades and shall be provided with arc suppressors. The fuse clips shall be spring reinforced, positive pressure type of electrolytic copper. Fuse clips shall be rejection type.
3. The switch shall be provided with cover-blade interlock so that the cover cannot be opened when the switch blades are closed, nor can the switch blades be closed with the cover open. Interlock bypassing devices shall be included for use by authorized personnel. Note: where indicated, safety switches shall have integral electrical interlocks. Contacts shall be open when the switch is in the off position.
4. Enclosures shall be NEMA 1 where used inside the building and NEMA 4X stainless steel where used outside unless otherwise shown on the Drawings.
5. Each safety switch shall be provided with ground lugs as required to accept grounding conductors as shown on the Drawings. The grounding lugs shall be factory installed and shall have direct metal-to-metal contact with the switch enclosure.
6. Double throw fused safety switches shall be furnished where indicated. They shall be lockable in any position and shall be service-entrance rated. They shall be heavy-duty NEMA 4X stainless steel unless noted otherwise.

L. Portable Generator Receptacle

1. Generator receptacle shall be Crouse-Hinds Arktite series, Killark, or equal. Shall be UL1682 and 514 compliant.

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2. Provide a heavy-duty, surface mounted generator receptacle with back box and all accessories. Provide the rating indicated on the Drawings. Sizes through 200A shall be load-break type.
3. The generator receptacle shall be the "Style 2" metallic type with factory installed jumper to bond the metallic housing to the grounded conductor.
4. The generator receptacle shall have reversed contacts such that personnel will not be exposed to live voltage even if the generator is running.
5. The receptacle shall be a 4-wire, 4-pole model.
6. The receptacle shall be NEMA 4 weatherproof with a cap for protection while not in use.

M. Motor Control

1. See Section 16900 for requirements.

N. Overcurrent Protection

1. Main 3-Phase Breakers – Shall be thermal-magnetic, molded-case, Type FA or KA as needed, Square D or equal. Provide service-entrance rated where indicated on the Drawings as being used in a service entrance application.
2. Power Fuses – Utilize Class J fuses and fuse blocks. Fuse blocks must have protective cover. Fuses may only be used where indicated on the Drawings. Otherwise, use circuit breakers.

O. Lighting

1. All fixtures shall be delivered complete with suspension and mounting accessories, ballasts, diffusers, reflectors, etc., all wired and assembled. All accessory wiring shall be furnished and installed as shown on the Contract Drawings.
2. All supports required for luminaires shall be furnished and installed by the CONTRACTOR.
3. All metal halide fixtures must have lens whether specified on the Drawings or not. No open-bottom metal halide fixtures are acceptable.
4. Fluorescent lamps shall have standard cool (4100 K) color characteristics and a minimum Color Rendering Index (CRI) of 82 unless otherwise indicated, and shall be of the type that will not require starter switches.
5. At date of substantial completion the CONTRACTOR shall provide new lamps in each lighting fixture.

6. Lighting Contactors - Contactor shall be NEMA ICS 2, electrically held contactor. Contacts shall be rated 600 volts, 30 amperes, and shall include the number of poles indicated on the Drawings. Coils shall be rated for the voltage indicated on the Drawings. Provide in NEMA 1 enclosure conforming to NEMA ICS 6 unless otherwise indicated. Contactor shall have silver alloy double-break contacts. Provide contactor with hand-off-automatic selector switch. Contactor shall be Square D, or equal.
- P. Supporting Devices - All strut, channel, conduit clamps/straps, and other supporting devices shall be either stainless steel or aluminum. All hardware such as nuts, bolts, anchors, washers, etc. shall be stainless steel.
- Q. Grounding Equipment - Ground rods shall be 10' x ¾" size, minimum.

PART 3 EXECUTION

3.01 INSTALLATION/APPLICATION/ERECTION

A. Conduit

1. PVC conduit shall be utilized below grade, and aluminum conduit shall be used above grade. The transition from PVC to aluminum shall occur below grade prior to the elbow. The aluminum conduit shall be taped with corrosion-prevention tape from the transition point to 6 inches above finished grade.
2. The CONTRACTOR shall be responsible for setting of all sleeves for his work. Passage of conduit through masonry and concrete walls shall be provided with steel pipe sleeves. Sleeves shall be flush with each face of the wall. Seal space between sleeve and conduit with oakum and waterproof mastic.
3. All conduit 1-1/4 inches and larger shall be sleeved.
4. Concrete encasements of underground conduit shall be installed where shown on the Drawings or specified herein. Concrete shall be 2500 psi in strength, dyed red throughout and shall be sized as detailed on the drawings.
5. During construction, all new conduits shall be kept dry and free of moisture and debris. Before the wire is pulled in, all conduits shall be swabbed to clear all moisture and debris which may have unavoidably accumulated.
6. Rigid conduits, where they entered panelboards, cabinets, pull boxes or outlet boxes shall be secured in place by galvanized, double locknuts (one inside and one outside) and bushings. Conduit bushings shall have insulating material which has been permanently fastened to the fittings. Bushings for conduit 1-1/2 inches trade size and larger shall be complete with grounding lug and shall be bonded to the box by means of bare

copper wire. Myers hubs shall be utilized rather than locknuts for all exterior and NEMA 4X penetrations.

7. All field bends shall be made with standard tools and bending equipment manufactured especially for this purpose. Bends in metallic conduit shall be made while cold and in no case shall the conduits be heated. Conduits shall not be bent through more than 90 degrees.
8. Size of conduits shall not be less than that required by the National Electrical Code. The CONTRACTOR shall install larger size conduits than detailed where there is more than 100 feet of unbroken run or where the total of the angles through which the conduit has been bent during a single run exceeds 270 degrees.
9. In general, flexible conduit is prohibited. Where absolutely necessary, it shall be liquidtight, with maximum lengths of 3 feet.
10. All conduit joints shall be made up tight and no running threads shall be permitted on threaded connections. No kinked, clogged or deformed conduits shall be permitted on the job.
11. During construction, all installed conduits shall be temporarily capped or corked.
12. All moisture proofing or other material for thread protection shall be removed from conduit threads prior to installation. No material of insulating quality shall be used on the conduit threads or other places which will reduce the overall conductivity of the conduit system.
13. Raceways shall be securely and rigidly fastened in place with conduit clamps or approved conduit hangers. Bolts, screws, etc. used in securing the work shall be stainless steel and of ample size for the service. Assembly bolts, nuts, washers, etc., shall be stainless steel. Raceways shall NOT be welded to steel structures.
14. Horizontal and vertical conduit runs shall be supported by one hole straps with clamp backs, special brackets, or other approved devices with suitable bolts, expansion shields where required. All mounting hardware shall be stainless steel.
15. The use of perforated iron straps or wire for supporting conduits will not be permitted.
16. Where conduit is run in a concrete slab, the conduit shall be installed as close to the middle of the concrete slabs as practicable without disturbing the reinforcement. The outside diameter shall not exceed one-third of the slab thickness and conduits shall be placed not closer than three diameters on centers, except at cabinet locations where the slab thickness shall be increased upon consultation with and approval by the ENGINEER.

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17. Depth of bury for all conduit shall be as indicated but not less than 30 inches below finished grade.
18. All conduit shall have an insulated ground wire pulled to all equipment.
19. All conduits penetrating enclosures shall have duct seal applied to seal the conduit and prevent moisture from entering the enclosure.

B. Wire and Cable (600 Volts and Below):

1. All wiring shall be installed in conduit. Wire shall not be installed until all work of any nature that may cause injury to the wire is completed.
2. Mechanical means shall not be used in pulling in wires No. 8 or smaller.
3. Approved wire pulling lubricant shall be used as required to prevent insulation damage and over stressing of the wire while pulling through conduit. In no case shall conductors be greased or coated with any substance injurious to the conductor insulation or sheath.
4. All wiring in control equipment, cabinets, etc., shall be neatly wrapped, taped, or laced into groups to provide a neat and orderly appearance in the equipment.
5. Where the wire is shown larger than that required for the load, it is done so for voltage drop or other purposes and must be installed as shown. Where the wire is stranded, the removal of strands in order to install the wire into a lug provided on any equipment will not be permitted. A larger lug shall be installed which will accept the wire size indicated.
6. For the wiring of circuits consisting of AWG No. 10 or smaller wire, self-insulated pressure connectors (wirenuts) shall be utilized for all splices or joints.
7. Where indicated on the Drawings, cables entering enclosures shall be sealed using strain relief connectors suitable for Class I, Division 1, Group D hazardous locations. The purpose of the connector is to provide a seal between the hazardous and non-hazardous location without the use of sealing fittings.
8. Each wire shall be labeled at both termination points. Individual conductor or circuit identification shall be carried throughout, with circuit numbers or other identification clearly stamped on terminal strips and shown in wiring diagrams.
9. In all junction boxes, cabinets, control compartments and terminal boxes where no terminal board is provided, each wire, including all power wires, shall be properly identified by plastic coated, self-adhesive, wire marker.
10. In cases similar to the above where the terminal boards are provided for the control, indicating, and metering wires, all wires including motor

leads and other power wires shall be identified by wire markers as specified above.

11. Equipment ground wire insulation shall be colored green or green with two or more yellow stripes. Isolated grounding conductors shall be green with striping that identifies the conductor as "isolated ground" and different from the equipment (bonded) ground.
12. In general and unless otherwise shown on the drawings, no two wires of the same color shall be run in the same conduit except such as control wiring, switch legs, neutral, and ground. Where a conduit run is shown on the drawings to have two or more wires connected to the same phase and, therefore, are the same color, pressure sensitive, plastic marked wire marker identification tape shall be used wherever the wire is accessible (junction boxes, panels, device boxes, etc). The numbers shall in each case, correspond to the circuit number and panelboard from which the circuit emanates. Control wiring inside any compartment which may be energized from a source outside the compartment shall have insulation. Where yellow insulated wires are used inside any cabinet, compartment, etc., a machine engraved, laminated plastic identification marker shall be installed on the outside of the compartment.
13. Insulation on ungrounded conductors larger than AWG #10 and on grounded (neutral) and grounding (equipment ground) conductors larger than AWG #6 may be black with color coding accomplished with the use of colored plastic tape. Tape shall be installed on the conductors wherever they are visible and shall be wrapped at least three (3) turns around the conductor.
14. All wiring on this project, except control wiring, shall reflect the phase relationship as follows:

480 volt system:	brown, orange and yellow for ungrounded conductors, gray with brown tracer for neutral conductors.
208Y/120 volt system:	black, red and blue for ungrounded conductors, white for neutral conductors.
120/240 volt, 3-phase 4-wire,delta system:	black, red for ungrounded conductors, orange for ungrounded conductor connected to "high leg", white for neutral.

C. Grounding

1. Ground rods shall be driven vertically into the earth to at least one foot below finished grade. Where a counterpoise or grounding grid is indicated and where rock is encountered at a depth of less than 4 feet,

rods shall be buried in a trench at not less than two feet below finished grade, and at equal angles from any two adjacent sides on the outside of the counterpoise or grid. In these cases, at the CONTRACTOR's option, equal lengths of bare conductor of the same size as the counterpoise or grid may be used in place of ground rods.

2. Conductors connecting the main ground bars in switchgear to the earth shall be continuous without joints or splices. Connections to the grounding system at the switchgear shall be made with pressure connectors such as defined in Article 100, "Connector, Pressure (Solderless)", of the National Electrical Code.
3. Connections to ground rods and all other ground connections below grade shall have a minimum mechanical contact surface area between the conductor and the ground rod of not less than three (3) square inches.
4. All connections made below finished grade shall be exothermic.
5. Installation of grounding conductors shall be such that they are not exposed to physical damage. All connections shall be firm and tight. Conductors and connectors shall be so arranged and provided so that there is no strain upon the connection. Buried equipment grounding conductors shall be buried at least 24 inches below finished grade and shall not be buried below concrete pads, paving, etc. except where running a tap to the grid or where shown on the contract drawings. Where buried below concrete or paving, grounding conductors shall be in rigid conduit unless shown on the drawings as a part of a grid.
6. Resistance measurements shall be made between the main grounding bar in the switchgear and a good earth ground. If this resistance is not equal to or less than 5 Ohms, an additional grounding electrode system in the form of ground rods installed and connected together in a 10-foot by 10-foot grid shall be added. The rods shall be connected together and this grid connected to the system with AWG #3/0 bare tinned copper. The number of rods shall be as required to register the resistance value mentioned above. Measurements shall be made in normally dry conditions and, in no case, less than 48 hours after rainfall. Submit a ground test report to the ENGINEER using the "Fall of Potential" method and appropriate ground testing instrumentation.
7. Where a bare conductor is the only conductor installed in conduit or other raceway, and this conductor is serving as a grounding conductor, it shall be bonded to the raceway that contains it at each end of the raceway. The bond shall be made using a grounding type bushing and bonding jumper. The size of the jumper shall be the maximum size that the grounding bushing lug will accept and it shall be connected to the bushing with the lug and to the grounding conductor with a split bolt connector.
8. All metal electrical equipment cabinets (wireways, panels, switchgear, device boxes, junction and pull boxes, motor control panels, etc.) shall be securely bonded to a grounding conductor running through any conduit

terminating at the cabinet or enclosure by use of a grounding lug bushing and jumper wire to the enclosure wall. Switchgear, panelboards and motor control equipment shall be provided with an equipment ground bus (including lugs or screw terminals) securely bonded to the enclosure. Junction boxes and other enclosures shall utilize an equipment ground bus or lug as required to securely bond the equipment grounding conductor to the enclosure. The grounding conductor shall be connected with pressure connectors at the main switchgear to the main grounding system. Where screw terminals or set screw lugs are used, sufficient lugs shall be provided such that not more than one conductor is installed into each lug or terminal.

9. No raceway (including rigid steel conduit, EMT, etc.) shall serve as a grounding conductor.
10. All main feeder circuits and all branch circuits shall contain a grounding conductor sized according to Table 250-95, Article 250 of the National Electrical Code or as shown on the drawings. This grounding conductor shall be connected to the main grounding conductor in the switchgear from which the circuit emanates. Individual components of the system served by the main feeder circuit shall have their enclosures connected to the main feeder grounding conductor with pressure connectors.
11. The grounding conductor serving motor circuitry shall be connected inside the entrance compartment to the motor frame with a bolted solderless pressure connector. Bolts, nuts, washers and other assorted hardware shall be bronze, cadmium plated steel, or other corrosion resistant material. The motor ground connection shall be to the motor frame and independent of the mounting bolts or sliding base.
12. Where lightning arresters are furnished and installed either separately or with equipment and the grounding connections are not inherently provided, a suitable, separate, grounding conductor shall connect the lightning arrester with a separate ground rod. This rod shall be interconnected with any adjacent grounding system.
13. Grounded and Grounding Conductor: Connections to the grounding conductor and/or the neutral (grounded) conductor shall be made in such a manner that removal of any device or equipment will not interrupt the continuity of these conductors to any device downstream from the device removed.

D. Lighting

1. The CONTRACTOR shall furnish all light fixtures, lighting equipment, components, hangers, etc., as shown on the Contract Drawings and shall install them at the locations shown on the Contract Drawings.
2. Mounting heights specified as indicated shall be to bottom of fixture. Coordinate exact mounting of lighting fixture with type, style and pattern of ceiling being installed.

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3. Clean interior lighting fixtures of dirt and debris upon completion of installation. Protect installed fixtures from damage during remainder of construction period.
4. At date of substantial completion, replace lamps in lighting fixture.
5. No light fixtures shall be hung or installed until after painting is completed, however, the CONTRACTOR shall provide temporary lighting. Fixtures in suspended ceilings shall be fastened to the main tees of the ceiling grid.

E. Light Poles

1. A concrete foundation shall be provided for each pole as detailed on the Contract Drawing. The poles shall be mounted utilizing anchor bolts set in the concrete. The anchor bolts shall have galvanized or plated threads and shall be furnished with the pole by the manufacturer. Bases shall have a 1-inch chamfer all around and rubbed and buffed smooth to below grade.
2. When anchor bolts are positioned prior to pouring concrete, spacing and projection must be verified with pole manufacturer's recommendations. A plastic or plywood template should be fabricated from the manufacturer's instructions to use when setting the anchor bolts. Anchor bolts that are not installed plumb and in the correct locations shall be removed and replaced. The CONTRACTOR shall not be allowed to bend the anchor bolts back to plumb after concrete is set.
3. Leveling nuts shall be utilized for the mounting of poles to foundations. A nut should be screwed down on each bolt until it meets the concrete, then the nuts must be adjusted until they are level.
4. The pole shall be carefully lowered onto the anchor bolts and allowed to rest on the leveling nuts. Flat washers followed by lockwashers should be placed on the anchor bolts and the top nut installed. Minor adjustments on the leveling nuts may be necessary to plumb the pole before the top nuts are tightened down. Special care shall be taken to tighten the top nuts to the torque level recommended by the pole manufacturer. All nuts and washers shall be galvanized or plated.
5. Concrete grout of the nonshrink type must be installed between the base of the pole and the concrete foundation. The grout should be puddled around the edge of the pole base and firmly packed in the space between the pole and foundation. A short piece of small diameter pipe must be installed to make a drain hole through the grout to the pole interior.
6. Aluminum poles must have the bottom of the base painted with Koppers bitumastic No. 50 or equal substitute product before grouting so that the aluminum does not come in contact with the concrete.
7. Poles shall not be modified or drilled on the job site.

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8. Under no circumstances should a ground wire be wrapped around an anchor bolt underneath an anchor bolt nut.
9. Manufacturer's installation instructions should be followed as well as those instructions contained herein. Should a discrepancy exist, promptly contact the ENGINEER for clarification.
10. Anchor bolt covers shall be furnished and installed.

END OF SECTION

SECTION 17010

GENERAL INSTRUMENTATION AND SCADA REQUIREMENTS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR shall furnish and install all materials, services, spare parts, commissioning, and other services as shown and specified and as required to install new flowmeters, new RTUs, new solar power systems and update the existing instrumentation and supervisory control and data acquisition (SCADA) system as indicated on the Drawings and as described herein. Microcomm, Inc. is the required system integrator, to integrate with the existing SCADA system.
- B. New flowmeters shall be provided at 17 sites. Seven of the sites are existing pump stations and the flowmeters shall be integrated into the existing RTUs. Ten of the sites will be new and a new RTU and solar power system shall be provided.
- C. All Instrumentation/SCADA equipment shall be installed, connected, and left in operating condition. The number and size of cables and conductors between all equipment and SCADA monitoring/control devices shall be as required to obtain the operation described in these Specifications, and/or by the Contract Drawings, and/or as shown in manufacturer-furnished, ENGINEER-reviewed Shop Drawings. The CONTRACTOR shall be responsible for supplying all components such as relays, loop isolators, transducers, etc., as necessary, whether indicated or not, at no additional cost to the OWNER in order to leave a complete functional instrumentation system. The CONTRACTOR shall ensure compatibility between all system components and provide any necessary peripheral equipment as required to make the components compatible.
- D. The CONTRACTOR shall be responsible for making modifications (hardware and software) to the existing RTU equipment, where required to accept new flowmeters.
- E. Where wiring diagrams are not shown on the Contract Drawings, they are to be furnished by the supplier of the equipment served and such diagrams shall be adhered to except as herein modified.

1.02 RELATED WORK

- A. Contractors bidding work under this Contract shall read and understand Division Zero and Division 1 - General Requirements. If any discrepancies are discovered between the General Instrumentation and Supervisory Control and Data Acquisition (SCADA) Requirements and General Requirements, the above-mentioned documents shall overrule this section. The General Instrumentation/SCADA Requirements are intended as a supplement to the above-mentioned documents. The CONTRACTOR shall bid as outlined in the above-mentioned Specifications and shall be governed by any alternates or unit prices called for in the form of proposal.

B. Division 16 - Electrical

1.03 SUBMITTALS

- A. Shop Drawings including descriptive literature and/or installation, operation and maintenance instructions shall be submitted in the amount of copies as listed in the General Conditions, but no less than 8 copies. All Shop Drawings shall be submitted in loose-leaf 3-ring cardboard reinforced vinyl binders with extensive indexing. Each sheet in the binder shall have hole reinforcements. Should there be any exceptions to the Specifications, the Supplier shall completely describe such in front of the submittal via a point-by-point letter referencing the specification paragraph number. The submittal shall be arranged as follows:
1. Front Cover – Project description and pertinent information
 2. First Page – Review stamp page.
 3. Next – Index
 4. Next – Overall description of the system
 5. Next – Telemetry Path study
 6. Next – Complete manufacturer’s information on all equipment and software
 7. Next – Complete manufactured drawings of meter panels and control panels including a detailed point by point wiring diagram of each. Drawings shall be either 8.5”x11” or 11”x17”. The first page of each product literature shall have the tag designation clearly indicated. Provide for each loop, the selected size of the equipment being submitted, NEMA classification, sizing calculations, and calibration data for all metering devices. Selected options shall be clearly indicated and excluded items shall be clearly marked out.
 8. Next – Complete list of spare parts, training program outline, Warranty description and information.
- B. Shop Drawings shall be submitted on all equipment specified in this Division unless a specific written exemption is obtained from the ENGINEER. The CONTRACTOR shall not procure or install any materials or equipment without approved shop drawings.
- C. The ENGINEER reserves the right to make modifications to instrumentation and SCADA equipment after Shop Drawing review, if the Instrumentation/SCADA Shop Drawings are submitted prematurely (prematurely meaning submitted before all process equipment has been reviewed and accepted). Cost of modifications shall be the CONTRACTOR’s responsibility.
- D. Operation and Maintenance: Manuals shall have stainless steel binder rings, no exceptions. Manuals shall be accepted shop drawings with the following modifications:

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1. Include complete addresses of all equipment manufacturing representatives and phone numbers of each.
2. Incorporate complete record drawings indicating final installation of equipment and wiring.
3. Include complete manufacturer's installation, operations, and maintenance manual for each piece of equipment and software supplied.
4. Complete parts lists with stock numbers.
5. Include a configuration record for each piece of equipment, including all parameter settings and set points.
6. Include NIST or other calibration certificates for Instrumentation.
7. The manuals shall include compact discs or DVDs with the following saved information:
 - a. Backup of all programs developed in the course of the project.
 - b. Backup of all reports, databases, set point listings, and all other electronic information utilized in the project.
 - c. Electronic copy of all installation, operations, and maintenance manuals which are available from the manufacturer in electronic format.

1.04 QUALITY ASSURANCE

- A. The CONTRACTOR shall be a factory authorized representative capable of start-up services of the equipment or shall provide the services of a factory authorized representative.
- B. In order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service to the greatest extent possible, like items of equipment provided hereunder shall be the end products of 1 manufacturer.

1.05 SYMBOLS AND ABBREVIATIONS

- A. The symbols and abbreviations generally follow standard instrumentation and electrical practice, however, exceptions to this shall be as shown on the Contract Drawings.

1.06 COORDINATION WITH OTHER TRADES

- A. The CONTRACTOR shall coordinate the instrumentation/SCADA work with that of other trades to ensure proper installation and functionality of all equipment and process control/monitoring programs. Installation of equipment may be performed by other trades unless specified otherwise.

1.07 CODES

A. The minimum standard for all work shall be the latest revision of the Kentucky Building Code (KBC), and the National Electrical Code (NEC). Whenever and wherever state and/or local laws or ordinances and/or regulations and/or the ENGINEER's design require a higher standard than these codes, then these laws and/or regulations and/or the design shall be followed.

B. Following is a list of other applicable Standards or Codes:

1.	Kentucky Building Code	KBC
2.	National Electrical Code	NEC
3.	International Electrotechnical Commission	IEC
4.	Underwriters Laboratories, Inc.	UL
5.	Factory Mutual System	FM
6.	National Fire Protection Association	NFPA
7.	National Electrical Manufacturers Association	NEMA
8.	Occupational Safety and Health Administration	OSHA
9.	National Institute of Standards and Technology	NIST
10.	Instrument Society of America	ISA
11.	Institute of Electrical and Electronic Engineers, Inc.	IEEE
12.	American National Standards Institute, Inc.	ANSI
13.	Federal Communications Commission	FCC

1.08 STORAGE

A. All work, equipment, and materials shall be protected against dirt, water, or other injury during the period of construction.

B. Sensitive instrumentation/SCADA equipment shall be protected against injury or corrosion due to atmospheric conditions or physical damage by other means. Protection is interpreted to mean that equipment shall be stored under roof, in a structure properly heated in cold weather and ventilated in hot weather. Provision shall be made to control the humidity in the storage area to 50 percent relative. The stored equipment shall be inspected periodically, and if it is found that the protection is inadequate, further protective measures shall be employed. Instrumentation/SCADA equipment shall not be installed until the structure is under roof with doors and windows installed.

1.09 ERRORS, CORRECTIONS, AND/OR OMISSIONS

- A. Should a piece of process equipment be supplied of a different type or manufacture than shown or specified in the Contract documents, the CONTRACTOR shall be responsible for installing, programming, and commissioning the proper instrumentation/SCADA equipment for proper operation, control, and monitoring of that process equipment at no extra cost to the OWNER.
- B. It is the intent of these Specifications to provide for an instrumentation/SCADA system installation complete in every respect, to operate in the manner and under conditions as shown in these Specifications and on the Contract Drawings. The CONTRACTOR shall notify the ENGINEER, in writing, of any omission or error at least 10 days prior to opening of bids. In the event of the CONTRACTOR's failure to give such notice, he/she may be required to correct work and/or furnish items omitted without additional cost. The submission of a bid indicates that the CONTRACTOR believes the design to be sound and can provide a fully functional and complete instrumentation and SCADA system. Further requirements on this subject may be found in the General Requirements, Division 1.

1.10 GUARANTEES AND WARRANTIES

- A. The CONTRACTOR shall guarantee all work including equipment, materials, and workmanship. This guarantee shall be against all defects of the electrical system or improper equipment operation. It shall last for the period of time specified in the General Conditions of the Contract, but not less than one year from the date of system acceptance (i.e. - when the ENGINEER accepts that the punchlist is complete.)

1.11 TESTING

- A. After the instrumentation/SCADA system is complete, and at such time as the ENGINEER may direct, the CONTRACTOR shall conduct an operating and performance test for acceptance. The system shall be demonstrated to operate in accordance with the requirements of these Specifications and the Contract Drawings. The test shall be performed in the presence of the ENGINEER or his authorized representative. The CONTRACTOR shall furnish all instruments, hardware, software, and personnel required for the tests.

1.12 UTILITY AND REGULATORY COORDINATION

- A. The CONTRACTOR is responsible for coordinating all activities required by the necessary utilities and regulatory agencies. This includes telemetry licensing by the FCC.
- B. Any special provisions required by the utilities or regulatory agencies shall be as outlined on the Contract Drawings or as advised by the utility at the time of construction, and work required by these special provisions shall be executed with no extra cost to the OWNER.

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- C. Fees charged by the utilities shall be included in the CONTRACTOR's lump sum bid.

1.13 TRAINING

- A. All manufacturers supplying equipment for this division shall provide the OWNER's operations staff with training in the operation and maintenance on the equipment being furnished. The training shall be conducted at the project site by a qualified representative of the manufacturer.
- B. The cost of this training shall be included in the bid price.
- C. The required training shall consist of both classroom and hands-on situation. Classroom training shall include instruction on how the equipment works, its relationship to all accessories and other related units, detailed review of shop drawings, detailed presentation of written O&M instructions, troubleshooting and record-keeping recommendations. Hands-on-training shall include a review of the manufacturer's O&M instructions, check out of each operator as to identifying key elements of the equipment, tear down as appropriate, calibration, adjustment, and operating manipulations of all controls.
- D. The training shall be scheduled through the CONTRACTOR with the OWNER. The timing of the training shall closely coincide with startup of the equipment, but no training shall be conducted until the equipment is operational. The training program shall not begin until operations and maintenance manuals have been reviewed and sent to the OWNER. Training shall use the accepted O&M manuals. Training shall not begin until the CONTRACTOR's instrumentation/SCADA punchlist is completed and all loops have been calibrated and are fully operational.
- E. The training program length shall be as described in the individual Division 17 sections.

1.14 RECORD DRAWINGS

- A. The CONTRACTOR shall maintain 1 set of the Contract Drawings on the job in good condition for examination at all times. The CONTRACTOR's qualified representative shall enter upon these drawings, from day to day, the actual record of construction and/or alteration progress. Entries and notes shall be made in a neat and legible manner and these drawings delivered to the ENGINEER after completion of the construction, for use in preparation of Record Drawings.

1.15 MAINTAINING CONTINUOUS PROCESS CONTROL AND MONITORING SYSTEM

- A. Existing system(s) continuity shall be maintained at all times. In no way shall the installation and/or alteration of the instrumentation/SCADA work interfere with or stop the normal operation of the existing facilities, except where prior arrangements have been made.

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- B. When additions and modifications to existing system(s) require outages of duration in excess of a few minutes, arrangements shall be made in advance for such outages. All outages shall be held to an acceptable minimum. If necessary, outages shall be performed on premium time. Under no circumstances shall a process control/monitoring outage of any duration be initiated until the OWNER and ENGINEER have concurred, and as far as possible in advance.

1.16 RECEIPTS

- A. Some sections of the Specifications call for equipment, materials, accessories, etc. to be furnished and “turned over to the OWNER” or like requirements. The CONTRACTOR shall obtain a receipt for each item turned over, signed by the OWNER or his representative. A copy of this receipt shall be transmitted to the ENGINEER.
- B. When a question arises concerning whether items have been turned over to the OWNER, and there is no signed receipt, it may be assumed that the items were not furnished.

PART 2 PRODUCTS

2.01 MATERIALS

- A. All materials used shall be new unless noted otherwise. All materials shall be UL listed for the application, where a listing exists. Additional requirements are found in Division 1. All equipment shall meet applicable FCC requirements and restrictions.
- B. The material and equipment described herein has been specified according to a particular trade name or make to set quality standards. However, each CONTRACTOR has the right to substitute other material and equipment in lieu of that specified, other than that specifically mentioned for standardization, providing such material and equipment meets all of the requirements of that specified and is accepted, in writing by the ENGINEER.
- C. The reuse of salvaged equipment will not be permitted unless specified herein or indicated on the Contract Drawings.

PART 3 EXECUTION

3.01 GROUNDING AND BONDING

- A. All metallic conduit, cabinets, supporting framework and instrumentation/SCADA equipment shall be grounded in accordance with the latest issue of the National Electrical Code.

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3.02 ANCHORING/MOUNTING

- A. Instrumentation/SCADA equipment other than computer equipment located in the office/control room shall be rigidly supported. Anchors used shall be metallic expansion type, or if appropriate to prevent spalling concrete, epoxy set type. Plastic or explosive type anchors are prohibited.

END OF SECTION

SECTION 17100

FLOWMETERS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR shall provide 17 flowmeters and appurtenances as indicated on the Contract drawings. Provide all materials, labor, spare parts, start-up services, as shown and specified and as required to install complete, functional, calibrated flowmetering systems.
- B. Provide surge protection on instrumentation loops and power supplies as specified herein.
- C. Provide instrumentation training services.
- D. Additional requirements are in Section 17010.

1.02 RELATED WORK

- A. Installation of all electrical equipment, conductors, and related items shall be in accordance with all applicable sections of Division 16 of these specifications.
- B. General Requirements are included in Division 1.
- C. Section 17010 - General Instrumentation and SCADA requirements.

1.03 SUBMITTALS

- A. Shop drawing approval is required before the CONTRACTOR purchases or installs any equipment. Submit in accordance with Section 17010.
- B. Operation and Maintenance Manuals shall be submitted in accordance with Section 17010.

1.04 QUALITY ASSURANCE

- A. See Section 17010 for requirements.
- B. Manufacturer NIST or equal calibration certificate is required for each flowmeter.

1.05 WARRANTY AND SERVICE

- A. See Section 17010 for requirements.

1.06 SPARE PARTS

- A. None required.

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1.07 TRAINING

- A. Training shall be in accordance with Section 17010.
- B. The flowmeter training program shall be a minimum of one 8-hour day on-site.

1.08 DELIVERY AND STORAGE

- A. See Section 17010 for requirements.

PART 2 PRODUCTS

2.01 GENERAL

- A. All equipment shall be UL listed where a listing exists.
- B. All electronic instrumentation equipment shall be of the solid-state type and shall utilize linear transmission signals of 4 to 20 mA dc. No zero-based signals will be allowed for remote transmission.
- C. All instrumentation supplied shall be of the manufacturer's latest design and be compatible for the industry it is being applied.
- D. All scales and readouts shall be direct reading in process units. Conversions are not acceptable. Flow rates shall be gpm. Flow totals shall be gallons.
- E. All transmitters shall be provided with remote-mounted indicators.
- F. All equipment must be able to reset after a power outage without having to be manually reset.
- G. All circuit boards in instruments shall be fungus proofed.
- H. Flowmeter sensors shall be suitable for 32 to 100 degrees Fahrenheit. Flow converters/transmitter/display units shall be suitable for -20 to 120 degrees Fahrenheit.

2.02 INSTRUMENTATION EQUIPMENT

- A. Electromagnetic Insertable Flowmeter and Transmitter (Qty 7 required)
 - 1. The electromagnetic flow meter shall be an insertable electromagnetic averaging flow measuring system, McCrometer FPI Mag or equal, optimized for water flow measurement as indicated on the Contract Drawings.
 - 2. The electromagnetic flow meter shall consist of a flow sensor and microprocessor-based signal converter and transmitter.
 - 3. The sensor electrodes shall be 316 stainless steel.
 - 4. Sensor equipment shall be IP-68. Converter shall be rated NEMA 4X.

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5. Provide a hot tap kit for the sensor to allow installation without draining the water line.
 6. Operating temp: Operating Temp: 14 to +120° F minimum acceptable band.
 7. Display: Background illumination with alphanumeric multiline LCD display to indicate flow rate, totalized values, settings, faults, and engineering units.
 8. Power supply: 120VAC +/- 20%.
 9. Outputs: 4-20 mA into 800 ohms max. Also provide digital pulse output for flow totalization. Also provide Modbus communications protocol.
 10. Sensor and signal converter performance:
 - a. Flow Range: As indicated on Contract Drawings or pump specifications.
 - b. Accuracy: +/-0.5% of actual flow, minimum.
 - c. Provide bidirectional flow measurement and reverse flow indication
 - d. Linearity: 0.3% of Range
 - e. Repeatability: 0.2% of Reading
 - f. Totalizer: 9-digit counter with reset capability from button or ext. input.
 11. The transmitter shall be remote mounted as indicated on the Contract Drawings.
 12. The flowmeter shall be suitable for use in contact with potable water. It shall be NSF 61 and NSF 372 compliant.
 13. Provide a calibration certificate with the flowmeter.
- B. Compound Water Meter (Qty 10 required)
1. The compound water meter shall be Sensus Omni or equal.
 2. The meter package shall comply with AWWA C701 and C702 for Class II compound meter assemblies. Each meter assembly shall be tested to ensure compliance. The meter package shall also meet or exceed NSF Standard 61 Annex F and G.
 3. The meter maincase shall be epoxy-coated ductile iron. Connections shall be flanged.

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4. Meter performance (max flow and max headloss) shall be equal to or better than the Sensus Omni flowmeter for the size indicated on the Drawings.
 5. The meter shall have an all-electronic register with totalizer display, pulse output, integral data logging capability, integral resettable accuracy testing feature, and 10-year battery life. It shall include wireless Sensus UI1203 (or equal) communications. It shall include 25 feet of cable for the pulse output and power supply.
 6. The meter shall be suitable for operation up to 200 psig.
 7. The meter shall include a strainer and straightening vanes.
 8. The meter and register shall be rated for a minimum of 4 feet of continuous submersion.
- C. Compound Water Meter Communicator – Provide 1 wireless communicator to allow drive-up meter read of the Sensus Omni (or equal) compound flow meter. The data shall be downloadable to a computer.

PART 3 EXECUTION

3.01 EQUIPMENT INSTALLATION

A. General

1. Install all equipment in accordance with the manufacturer's installation and maintenance information.
2. Provide and install all necessary mounting equipment, brackets, required for mounting of equipment.
3. Instrument cables shall be pulled without undo stress that may aggravate the number of twists per foot. Shields shall be continuous and shall be only grounded at one end.
4. Place duct seal around the wires in each conduit entering every instrument enclosure for the project.
5. All instruments and equipment shall be left free from shipping burrs, paint overspray, grease, etc. All scratches shall be touched up with manufacturer's matching paint.
6. Remove all shipping tags, lifting rings, from enclosures. Plug all non-used holds in enclosures.
7. The placing and location of system components, their connections to the process equipment panels, cabinets and devices, shall be coordinated with the ENGINEER's acceptance.

3.02 STARTUP SERVICES

- A. After equipment and materials have been shipped to the job site, the CONTRACTOR shall furnish the services of a factory-trained service technician or engineer to assist and advise the CONTRACTOR during installation and to provide calibration/adjustment at initial startup.
- B. Following installation, checkout, and final adjustment of all panels, instruments, meters, monitoring, and control devices, the CONTRACTOR shall schedule a performance test in the presence of the ENGINEER on all equipment. The CONTRACTOR shall furnish the services of servicemen, all special tools, calibration equipment, and labor to perform the tests.
- C. Meters shall be tested at 0 percent, 25 percent, 50 percent, 75 percent, and 100 percent of scale, if possible. All status and alarm switches as well as all monitoring and control functions shall also be checked. Testing shall be done from the signal source to the final element or device including all field wiring.
- D. If, during running of the tests, one or more points appear to be out by more than the system accuracy statement, the CONTRACTOR shall make such adjustments or alterations as are necessary to bring equipment up to specification performance. Following such adjustment, the tests shall be repeated for all specified points to ensure compliance.

END OF SECTION

SECTION 17200

SCADA PANELS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Provide 10 new RTUs and solar power systems to transmit flow information to the water district master station.
- B. Provide updates to 7 existing RTUs at existing pump stations to transmit flow information to the water district master station.
- C. Provide updates to the master MTU at the water district office as needed to integrate the new RTUs and new flowmeters.
- D. The CONTRACTOR shall furnish and install all materials, services, spare parts, start-up services, as shown and specified and as required to update the supervisory control and data acquisition (SCADA) system as indicated on the Drawings and as described herein.
- E. Additional requirements are specified in Section 17010.

1.02 RELATED WORK

- A. Installation of all electrical equipment, conductors, and related items shall be in accordance with all applicable sections of Division 16 of these specifications.
- B. General Requirements are included in Division 1.

1.03 SUBMITTALS

- A. Shop drawing approval is required before the CONTRACTOR purchases or installs any equipment. Submit in accordance with Section 17010.
- B. Operation and Maintenance Manuals shall be submitted in accordance with Section 17010.
- C. Submit updated wiring diagrams for the existing RTUs, showing how the new flowmeter shall be connected.

1.04 QUALITY ASSURANCE

- A. See Section 17010 for requirements.

1.05 WARRANTY AND SERVICE

- A. See Section 17010 for requirements.

1.06 SPARE PARTS

- A. Furnish one spare processor unit for each unique processor installed.

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- B. Furnish one spare I/O Module for each unique I/O module type installed.
- C. Furnish one spare radio transmitter for each unique radio installed.
- D. Furnish one spare power supply for each unique power supply installed.
- E. Furnish one spare surge protector for each unique surge protector installed.
- F. Ten fuses of each size/type in the system.

1.07 TERMINOLOGY

- A. MTU – Master Telemetry Unit: A radio with associated equipment used to communicate to remote locations.
- B. RTU – Remote Telemetry Unit: A radio with inputs and outputs used to communicate with the master telemetry unit or other remote telemetry units.
- C. PLC – Programmable logic controller

1.08 SOLAR POWER SYSTEM REQUIREMENTS

- A. A solar power system shall be furnished and installed at each of the 10 new flowmeter sites as indicated on the Drawings in lieu of installing an electrical service from the electrical utility. Comply with the minimum requirements below.
- B. Solar panel wattage shall be a minimum of 200W but no less than 150 percent of the maximum power draw of the load connected to it. Provide calculations in the shop drawing submittal. The solar power system must accommodate both the RTU and the flowmeter at each site.
- C. Battery rating shall be a minimum of 90 amp-hours, but shall be sized for no less than 5 days operation without sunlight. Provide calculations in the shop drawing submittal documenting the sizing for a minimum of 5-day operation.
- D. All electronic equipment shall be listed for the ambient temperatures to be encountered at the site and shall be protected in a weatherproof cabinet.
- E. Warranty shall be 5 years minimum on solar equipment other than batteries, except solar panel shall be minimum 10 years.
- F. All equipment shall be UL listed. Solar controllers/Inverters shall comply with UL1741. Photovoltaic modules shall comply with UL1703.
- G. The solar controller shall automatically disconnect the load when the battery reaches a low state of charge, and it shall include transient surge protection.
- H. The complete installation shall comply with NEC requirements.

PART 2 PRODUCTS

2.01 GENERAL

- A. Acceptable manufacturers of SCADA hardware shall be Microcomm, Inc. and Motorola.
- B. All equipment must be able to reset after a power outage without having to be manually reset.
- C. All equipment mounted outdoors shall be protected from the sunlight, and extreme temperatures between -20 degrees and 140 degrees Fahrenheit.

2.02 SCADA CABINETS

- A. General: All control cabinets shall be UL listed and provided with the following features:
 - 1. Enclosure: Sized for 15 percent spare panel space with a single 3-point roller latch. Screw clamps are unacceptable. NEMA rating shall be NEMA 4 painted steel. Aluminum cabinets shall not be used in uncontrolled temperature environments due to thermal expansion issues. Components installed in the exterior of the enclosure shall maintain the NEMA rating of the enclosure. All enclosures shall have a padlock hasp.
 - 2. Provide battery in the RTU, sized for 15 minutes of backup power in the event of power outage.
 - 3. Provide DC power supply, miscellaneous breakers, fuses, terminal blocks, wiring duct, and other panel components
 - 4. Provide prewired with all field wiring landed on terminal blocks for field installation
 - 5. MicroComm Programmable controller with 4-20mA input for flow rate, pulse input for flow total, and minimum 4 spare digital inputs.
 - 6. VHF Radio and accessories. See Section 17500.
 - 7. Antenna feedline surge protection, Polyphaser or equal
 - 8. LCD Display to connect to Microcomm controller and display flow rate, daily flow total, and monthly flow total.
 - 9. Power supply surge suppressor as specified below.

2.03 SURGE SUPPRESSION

- A. Cabinet Power Supply Surge Protective Device (SPD)
 - 1. The power supply SPD shall be a Din-Rail-Mounted device and shall be installed to protect the equipment in the cabinet from harmful surges and voltage spikes.

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2. The SPD shall have nominal ratings of 120VAC and 26A minimum. Temperature range shall be -40 degrees Celsius to 80 degrees Celsius.
3. The device shall have a surge handling capacity of 10kA (8/20microsecond) minimum. It shall have hybrid technology for "fine" voltage clamping and "coarse" surge current handling. The clamping voltage shall be less than or equal to 500V. The response time shall be less than or equal to 25 nanoseconds.
4. The device shall be a Phoenix Contact "Mains-Plugtrab PT Series," or equal.

PART 3 EXECUTION

3.01 EQUIPMENT INSTALLATION

- A. Install all equipment in accordance with the manufacturer's installation and maintenance information.
- B. Provide and install all necessary mounting equipment, brackets, required for mounting of equipment.
- C. Place duct seal around the wires in each conduit entering every SCADA cabinet for the project.
- D. All equipment shall be left free from shipping burrs, paint overspray, grease, etc. All scratches shall be touched up with manufacturer's matching paint.
- E. Provide SPDs on the power supply circuit to each SCADA cabinet.
- F. Locate equipment as shown on the electrical drawings.
- G. Remove all shipping tags, lifting rings, etc. from enclosures. Plug all non-used holes in enclosures.
- H. The placing and location of system components, their connections to the process equipment panels, cabinets and devices, shall be coordinated with the ENGINEER's acceptance.

3.02 STARTUP SERVICES

- A. Following installation, checkout, and final adjustment of all hardware, the CONTRACTOR shall schedule a performance test in the presence of the ENGINEER on all equipment. This test shall be concurrent with the SCADA software test.

END OF SECTION

SECTION 17400
SCADA SOFTWARE

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR shall provide SCADA software development, testing, commissioning, debugging, and maintenance services as specified herein. Provide all materials, labor, software, and services as required to implement a complete and functional system. The existing software is Microcomm SCADAview CSX Version 2.7.9 on Windows 10.
- B. Integrate each I/O point specified herein into the SCADA software.
- C. Provide software operation and development training services.

1.02 RELATED WORK

- A. General requirements are located in Division 1.
- B. Section 17010 – General Instrumentation/SCADA Requirements

1.03 QUALITY ASSURANCE

- A. See Section 17010 for requirements.

1.04 WARRANTY AND SERVICE

- A. See Section 17010 for requirements.

1.05 TRAINING

- A. Provide training on how to access flow total reports.

1.06 SOFTWARE UPDATES

- A. Provide any software updates or additional licensing necessary to integrate the new signals and reports specified herein.

PART 2 PRODUCTS

Not Applicable

PART 3 EXECUTION

3.01 SOFTWARE SERVICES

- A. General: Software services shall include program development, testing, documentation, and work necessary to implement a complete and fully operating system as shown on Drawings and as specified.

- B. RTU: Develop programs for execution on RTU controller. Provide logic to convert flow total pulse into a live flowrate for sites that only have a pulse signal (Sensus Omni meters). Totalization shall use the pulse output of the flowmeters rather than integration of the 4-20mA signal. The following minimum I/O points must be integrated for each RTU:
1. Flow rate
 2. Flow Total Today
 3. Flow Total Yesterday
 4. Flow Total This Month
 5. Flow Total Last Month
 6. Power Failure Alarm
 7. Communication Failure Alarm
 8. Low Battery Alarm
- C. SCADA Interface Screens: Provide a live SCADA screen to view the flow rates and flow totals from all sites.
- D. SCADA software required application features:
1. Alarm Management: For each process or system event classed as an alarm provide facilities for displaying and logging in database, acknowledgment, and purging of stale messages. Alarm events are derived from discrete inputs, analog trip values, logic combinations and computations as needed. Log and display both alarm events and returns to normal. Provide date/time stamps for events, descriptive message, and event type code. Use color combinations to distinguish following alarm states: Alarm-Unacknowledged, Alarm-Acknowledged, Normal-Unacknowledged, and Normal-Acknowledged.
 - a. For each 4-20mA instrument, provide a "Transmitter Failure" alarm that triggers if the signal falls below 3.8 mA or exceeds 20.2 mA. This alarm shall not be triggered if a power outage occurs.
 2. Trending: All flow-rates shall have pre-configured trends. Provide on-screen trending displays that are user definable that operate from either previously collected historical trend groups (named file) or from a group of real-time variables. Provide facilities for user selection of colors, time (horizontal), and measurement (vertical) scales. Accommodate real-time sampling intervals as short as 1 second. Real-time trends shall show alarm setpoints. Historical trend displays shall have time-scale panning controls. All trends must have an adjustable cursor that indicates both Y and X axis values at the user-selected location.

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3. Reports

- a. Daily totals shall be published at midnight. Monthly totals shall be published at midnight on the last day of the month.
- b. Provide a CSV or Excel log file for each day's flow totals and another file for each month's flow totals. A new daily log file shall be generated each year.
- c. The reports are required to show all flowmeters in one spreadsheet with labeled columns/rows. It is not acceptable to generate reports one flowmeter at a time.

3.02 PERFORMANCE TEST

- A. Following installation, checkout, and final adjustment of software, the CONTRACTOR shall schedule a performance test in the presence of the ENGINEER and the OWNER.
- B. Demonstrate to the ENGINEER and OWNER that each I/O point specified has been integrated and is functioning properly.
- C. Demonstrate trending, reporting, and alarm messaging has been configured properly and is operational.
- D. Software development shall not be accepted until the SCADA system functions for at least one week with no nuisance alarms. Nuisance alarms shall be as defined by the OWNER.

END OF SECTION

SECTION 17500
RADIO TELEMETRY SYSTEM

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Provide a radio-frequency (RF) data transmission/telemetry system for communication between the existing supervisory control and data acquisition system (SCADA) master telemetry unit (MTU) at the Water District Office and the indicated remote telemetry units (RTUs). The telemetry system shall consist of transceivers, communication links, antenna systems, towers, and surge protection. The telemetry system shall be provided by Microcomm, Inc., to integrate with OWNER's existing telemetry system.
- B. Ten new RTU sites are required. See the Drawings for requirements.
- C. An onsite physical path study is required to be performed prior to procurement of towers and antenna equipment.

1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Divisions 0 and 1 Specification Sections, apply to this Section.
- B. Electrical work is specified in Division 16.
- C. Section 17010: General Instrumentation/SCADA requirements.

1.03 REFERENCES

- A. Code of Federal Regulations (CFR): 47 CFR 15 Radio Frequency Devices
- B. IEEE C62.41 Surge Voltages in Low-Voltage AC Power Circuits
- C. NFPA 780 Installation of Lightning Protection Systems

1.04 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Provide the following information in a single submittal for ENGINEER approval:
 - 1. System Drawing
 - a. Data transmission system block diagram.
 - b. Radio system installation and wiring diagrams.

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- c. Radio system physical layout and schematics.
- d. Details of connections to power sources and grounding.
- e. Details of surge protection device installations.
- 2. Equipment Data
 - a. A complete data package shall be delivered for all materials, including field and system equipment.
- 3. Data Transmission System Descriptions and Analyses
 - a. The submittal shall include complete system descriptions, analyses, and calculations used in sizing equipment required by these specifications. Descriptions and calculations shall show how the equipment will operate as a system to meet the performance of this specification.
 - b. The data package shall include the results of an onsite physical path study using the radio transceivers proposed for installation. CONTRACTOR is required to supply a bucket truck with minimum 60' bucket height to perform the test. The proposed radio system will not be accepted without documentation of a successful path.
- 4. System Overall Reliability Calculations
 - a. The data package shall include manufacturers' reliability data and calculations required to show compliance with the reliability specified herein.
- 5. Certifications
 - a. All specified manufacturer's certifications shall be included with the data package.

1.05 OPERATION AND MAINTENANCE MANUALS

- A. O&M manuals with complete as-built information and operation/maintenance instructions are required to be submitted in accordance with Section 17010.

1.06 WARRANTY

- A. Equipment supplied under this section shall be warranted for a period of two years dating from final completion. Warranty shall include all parts, labor, and expenses as required to repair the system and restore it to full operational status.

1.07 GENERAL REQUIREMENTS

A. Environmental Requirements

1. Equipment to be utilized indoors shall be rated for continuous operation under ambient environmental conditions of 2.1 to 48.9 degrees Celsius (35 to 120 degrees Fahrenheit) dry bulb and 10 to 95 percent relative humidity, noncondensing. All other equipment shall be rated for continuous operation under the ambient environmental temperature, pressure, humidity, and vibration conditions specified or normally encountered for the installed location.

B. Electrical Requirements

1. The equipment shall operate from a voltage source as shown, plus or minus 10 percent, and 60 Hz, plus or minus 2 percent.

C. Power Line Surge Protection

1. Equipment connected to ac circuits shall be protected from power line surges. Equipment shall meet the requirements of IEEE C62.41. Fuses shall not be used for surge protection.

D. Communications Links Surge Protection

1. A surge protector is required at each RTU antenna cable to protect the radio transceiver.

1.08 RF SYSTEM REQUIREMENTS

A. Minimum Signal

1. A minimum signal voltage of 3.1 microvolts into 50-ohm load shall be maintained during signal transmission at any point within the system.

B. Error Rate

1. An error rate of less than 5 errors per 100,000 commands shall be maintained.

C. Adequate Fade Margin

1. The individual links shall each be designed for 30dB fade margin, minimum. Actual as-built/physical measurements shall yield a minimum of 20dB fade margin in order to be accepted.

D. Reliability

1. The system shall be designed for 99.999% reliability.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Microcomm/Motorola

2.02 RADIO MODEMS

- A. The radio shall be a single, integrated unit. It shall be rated for operation with the unit transmitting continuously. The radio shall be programmable to operate on a frequency of 150 to 174 MHz.
- B. Transmitter power shall be programmable from 0 to 25W.
- C. Additional Requirements
 - 1. Frequency stability: +/-0.5ppm.
 - 2. Transmitter Output Impedance: 50 Ohm
 - 3. Harmonic and spurious content of the output signal level shall be at least 55 dB below the carrier portion of the output signal level.
 - 4. Frequency deviation shall be equal to or less than 5 kHz.
 - 5. Receiver Input impedance: 50-ohm
 - 6. Receiver modulation acceptance bandwidth: 25 kHz.
 - 7. Receiver sensitivity: -101dBm @ 12 dB SINAD or better.

2.03 REPEATERS

- A. Provide repeater functionality at existing Estill County sites as needed to implement the requirements of this Contract.

2.04 ANTENNA SYSTEM

- A. Antenna system shall be selected to be consistent with the paragraph RF System Requirements above. Provide a yagi antenna at each site. The antenna system and cabling shall be furnished to provide adequate system gain. The antennas shall be capable of withstanding the environmental conditions of 70 mph wind and ½ inch radial ice without failure. The antenna system shall be selected by the CONTRACTOR to meet the requirements as determined from the topography. Lightning protection shall comply with NFPA 780.
- B. Antenna grounding conductors shall be minimum No. 10 AWG copper.
- C. Ground rods shall be as specified in Division 16.

371-20-01 (04/2020)

- D. Transmission line between the transmitter and the antenna shall be 50-ohm impedance rated for the transmitter output power. Minimum requirement shall be cable that exhibits an attenuation not exceeding 1.1 dB per 30.5 m (100 feet) at 200 MHz.
- E. The CONTRACTOR shall be responsible for providing all mounting as required to support the antennas at the elevations and orientations required by the radio path survey within the FCC regulations. Masts shall be suitable for out-door environmental conditions, provide adequate support and protection for transmission lines and be provided complete with all necessary mounting accessories.
- F. CONTRACTOR shall bid antenna tower heights at each location as indicated on the Contract Drawings. This height shall be confirmed during the onsite physical path study prior to tower procurement and, if a taller tower is needed, the Contract will be adjusted via change order. Antenna towers shall be Rohn G-series self-supporting towers, or equal, with 70 mph wind rating and concrete mat foundation provided per manufacturer's instructions. A safety cable is required for each tower.

2.05 CONDUIT

- A. Conduit shall be as specified in Division 16.

PART 3 EXECUTION

3.01 INSTALLATION

- A. All system components and appurtenances shall be installed in accordance with the manufacturer's instructions and as shown. All necessary interconnections, services, and adjustments required for a complete and operable data transmission system shall be provided.
- B. Antenna: All tubular radiator elements shall be plugged to prevent wind vibration fatigue. All vertical tubular elements shall have drain holes near the bottom. All outside connectors shall be snug, filled with silicone grease, and properly taped over with plastic tape suitable for cold weather.

3.02 TESTING

- A. General: The CONTRACTOR shall provide all personnel, equipment, instrumentation, and supplies necessary to perform all testing.
- B. CONTRACTOR's Field Test: The CONTRACTOR shall verify the complete operation of the radio telemetry system during the field testing. The CONTRACTOR's Field Test shall include an error rate test. The CONTRACTOR shall perform the test by sending 100,000 commands and measuring the error rate. The error rate shall be not greater than 5 out of 100,000. The CONTRACTOR shall also publish screen shots indicating the as-built fade margin of each link, which is required to be 20dB minimum. The CONTRACTOR shall prepare a report containing results of the field test.

371-20-01 (04/2020)

- C. Verification Test: The radio telemetry system shall be tested as a part of the completed SCADA system during the Performance Verification Test as specified in Section 17010.

3.03 SPARES

- A. The following is a list of spare parts required within this Contract:

1. One radio transceiver for each unique type installed.
2. One surge protector for each unique type installed.
3. Ten fuses for each unique type installed.

END OF SECTION

371-20-01 (04/2020)

SECTION 00910

**ADDENDUM NO. 1
CONTRACT 371-20-01
WATER SYSTEM IMPROVEMENTS
PHASE 11 ZONE METER AND RIVER CROSSING INSTALLATION
ESTILL COUNTY WATER DISTRICT NO. 1
ESTILL COUNTY, KENTUCKY**

JANUARY 11, 2021

The attention of contractors bidding the titled contract is called to the following additions, substitutions, or deletions to the Drawings and/or Specifications.

A. Specifications

1. Section 00815—Insert Wage Rates General Decision Number KY20210059, dated January 1, 2021.

BELL ENGINEERING
2480 Fortune Drive, Suite 350
Lexington, Kentucky 40509



Alan Bowman, P.E.
Project Engineer

Attachment:

Attachment A, Wage Rates General Decision Number KY20210059, dated January 1, 2021

END OF SECTION

01010-1

"General Decision Number: KY20210059 01/01/2021

Superseded General Decision Number: KY20200059

State: Kentucky

Construction Type: Heavy

Counties: Anderson, Bath, Boyle, Carroll, Estill, Fleming, Garrard, Lewis, Lincoln, Madison, Mason, Menifee, Mercer, Montgomery, Nicholas, Powell, Robertson, Rockcastle, Rowan and Washington Counties in Kentucky.

HEAVY CONSTRUCTION PROJECTS (including sewer/water construction).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.95 for calendar year 2021 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.95 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2021. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/01/2021

ENGI0181-010 07/01/2020

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1.....	\$ 33.95	17.25
GROUP 2.....	\$ 31.09	17.25
GROUP 4.....	\$ 30.77	17.25

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - Crane; Drill; Grader/Blade; Mechanic; Scraper

GROUP 2 - Bobcat/Skid Steer/Skid Loader; Forklift

GROUP 4 - Oiler

Operators on cranes with booms 150 feet and over (including jib) shall receive \$1.00 above Group 1 rate; 250 feet and over including jib shall receive \$1.50 above Class 1 rate. Combination Rate: All crane operators operating cranes, where the length of the boom in combination with the length of the piling leads equal or exceeds 150 feet, shall receive \$1.00 above the Group 1 rate.

Employees assigned to work below ground level are to be paid 10% above basic wage rate. This does not apply to open cut work.

 * IRON0782-010 08/01/2020

	Rates	Fringes
IRONWORKER (Reinforcing & Structural)		
Projects over \$20,000,000.00.....	\$ 30.13	25.17
Projects under \$20,000,000.00.....	\$ 28.54	23.75

 LAB00189-015 07/01/2020

	Rates	Fringes
LABORER		
Backfiller, Carpenter Tender, Common or General, Concrete Worker, Dumpman & Grade Checker.....	\$ 23.26	15.62
Concrete Saw (Hand Held/Walk Behind),		

Pipelayers & Vibrating Plate.....	\$ 23.51	15.62
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LAB00561-003 07/01/2020

	Rates	Fringes
LABORER Form Worker.....	\$ 23.91	16.10

SUKY2011-015 06/25/2014

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 21.51	10.00
ELECTRICIAN.....	\$ 32.35	2.18
LABORER: Flagger.....	\$ 18.31	8.89
OPERATOR: Backhoe/Excavator/Trackhoe.....	\$ 26.42	12.70
OPERATOR: Bulldozer.....	\$ 29.96	13.00
OPERATOR: Loader.....	\$ 25.35	13.00

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates

the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal

process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

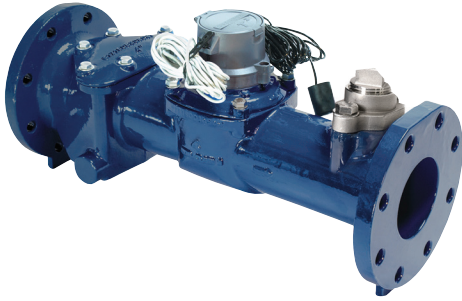
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END OF GENERAL DECISION

"

EXHIBIT 17

EXHIBIT 17A



OMNI™ Turbo (T²) Water Meter

1-1/2", 2", 3", 4", 6", 8" and 10" OMNI T² Meter

The OMNI T² meter operation is based on advanced Floating Ball Technology (FBT).

DESCRIPTION:

- Floating Ball Technology (FBT)

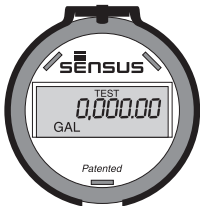
ELECTRONIC REGISTER DISPLAY DIAGRAM



Totalization Mode



AMR/AMI Mode



Resettable Test Mode



Rate of Flow Mode

Conformance to Standards

The OMNI T² meter meets and far exceeds the most recent revision of AWWA Standard C701 class II standards. Each meter is performance tested to ensure compliance. All OMNI meters are NSF/ANSI Standard 61, Annex F and G approved.

Performance

The patented measurement principles of the OMNI T² meter ensure greater accuracy, expanded accuracy range and longer service life than any other comparable class meter. The OMNI T² meter has no restrictions on sustained flow rates within its continuous range. The floating ball measurement technology allows installation in any orientation and flows up to maximum rated capacity without undue wear or accuracy degradation.

Construction

The OMNI T² meter consists of two basic assemblies; the maincase and the measuring chamber. The measuring chamber assembly includes the "floating ball" impeller with a coated titanium shaft, hybrid axial bearings, integral flow straightener and an all electronic programmable register with protective bonnet. The maincase is made from industry proven Ductile Iron with an approved NSF epoxy coating. Maincase features are; easily removable measuring chamber, unique chamber seal to the maincase using a high pressure o-ring, testing port and a convenient integral strainer.

OMNI Electronic Register

The OMNI T² electronic register is hermetically sealed with an electronic pickup containing no mechanical gearing. The large character LCD displays AMR, totalization, rate of flow and a resettable test totalizer. OMNI register features include AMR resolution units that are fully programmable, fully programmable pulse output frequency, integral customer data logging capability and integral resettable accuracy testing feature compatible with UniPro and Sensus flow verification software. The



large, easy-to-read LCD also displays both forward and reverse flow directions. The OMNI T² electronic register has a 10-year battery life guarantee.

Magnetic Drive

Meter registration is achieved by utilizing a fully magnetic pickup system. This is accomplished by the magnetic actions of the embedded rotor magnets and the ultra sensitive register pickup probe. The only moving component in water is the “floating ball” impeller.

Measuring Element

The hydro-dynamically balanced impeller floats between the bearings. The Floating Ball Technology (FBT) allows the measuring element to operate virtually without friction or wear, thus creating the extended upper and lower flow ranges capable on only the OMNI T² meter.

Strainer

The OMNI T² with the AWWA compliant “V” shaped strainer uses a stainless steel screen along with Floating Ball Technology (FBT). This creates a design that greatly improves accuracy, even in difficult settings. A removable strainer cover permits easy access to the screen for routine maintenance.

Maintenance

The OMNI T² meter is designed for easy maintenance. Should any maintenance be required, the measuring chamber and/or strainer cover can be removed independently. Replacement parts or complete measuring chambers are available for repairs. OMNI T² replacement measuring chambers may also be utilized to upgrade some third-party meters to achieve increased accuracy and extended service life.

AMR/AMI Systems

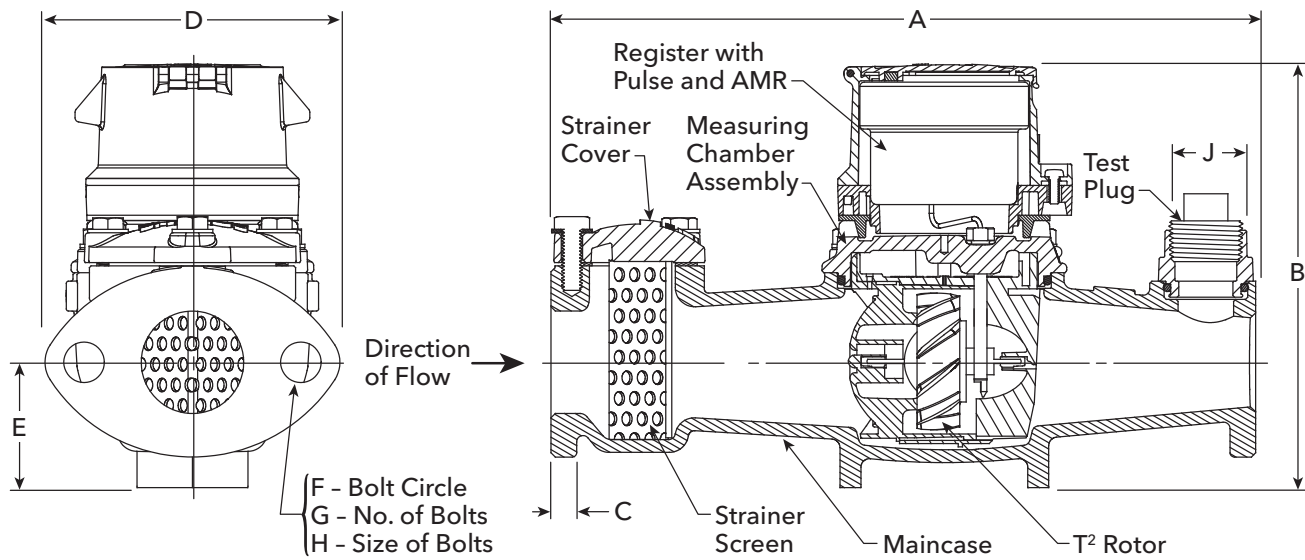
Meters and Electronic Registers are compatible with current Sensus AMR/AMI systems and other AMI communication systems that use the Sensus UI1203 protocol.

Guarantee

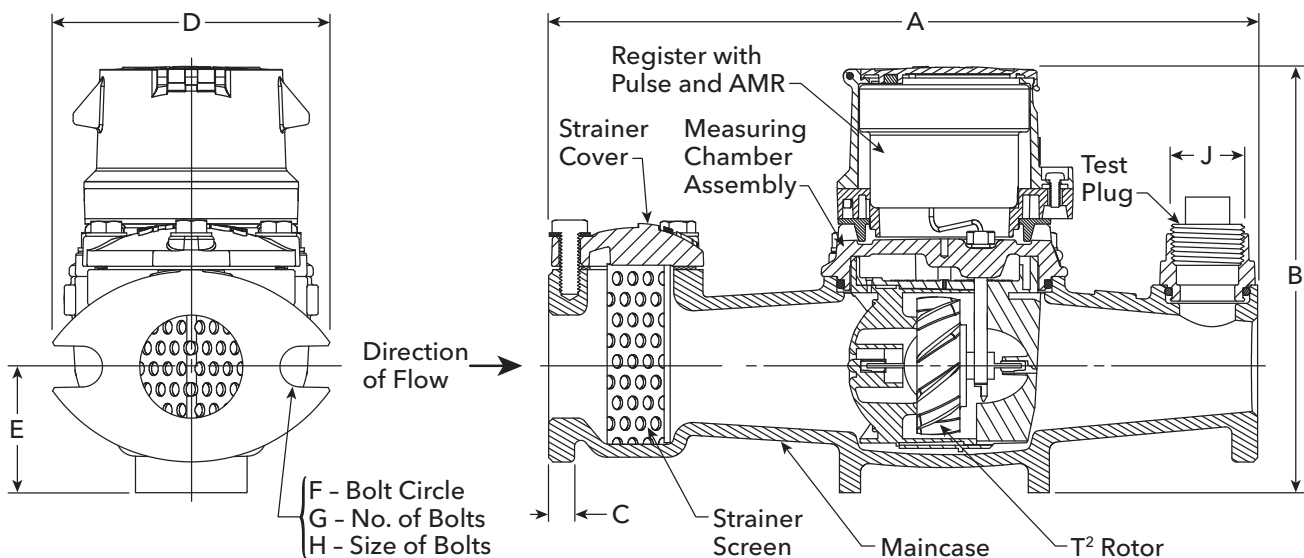
Sensus OMNI T² Meters are backed by “The Sensus Guarantee.” Ask your Sensus representative for details or see Bulletin G-500.



OMNI^{T2}: 1-1/2"

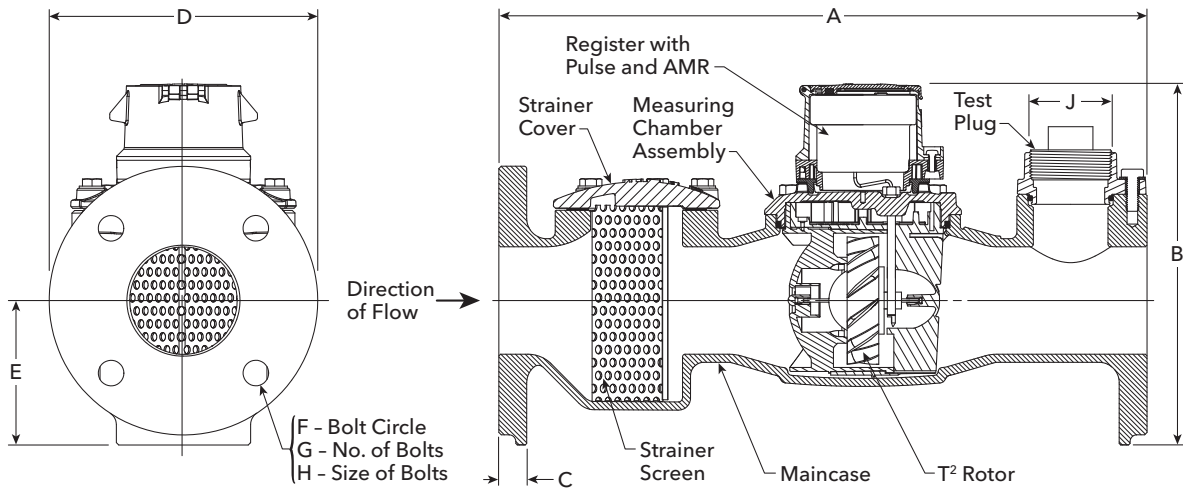


OMNI^{T2}: 2"

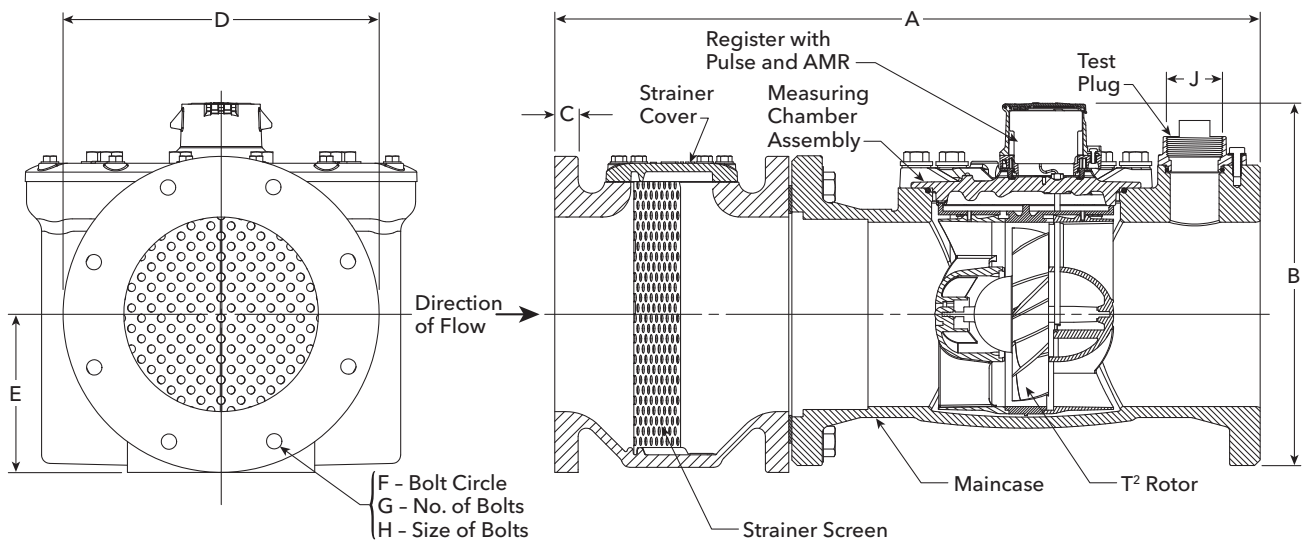




OMNI T²: 3" - 6"



OMNI T²: 8" - 10"





Dimensions and Net Weights

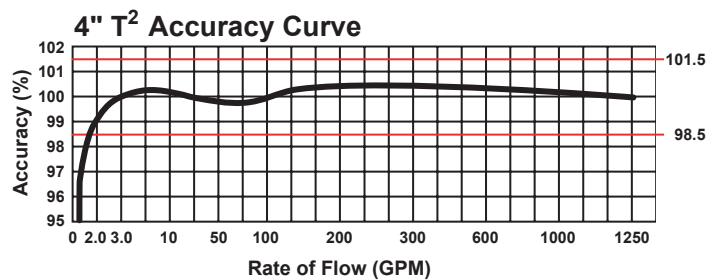
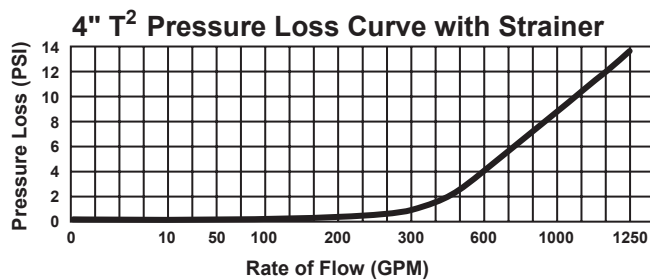
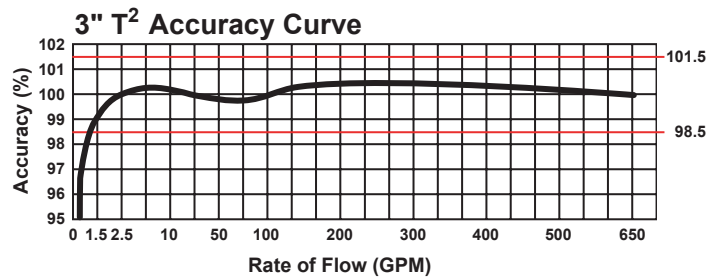
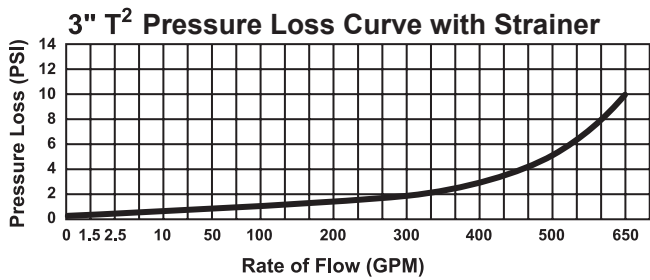
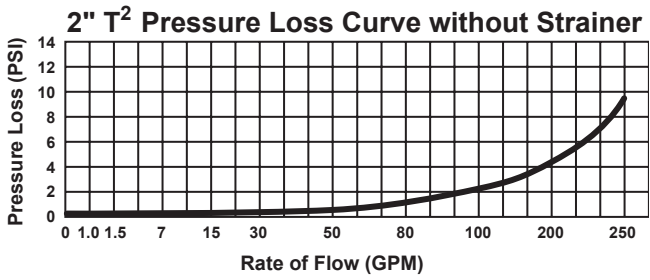
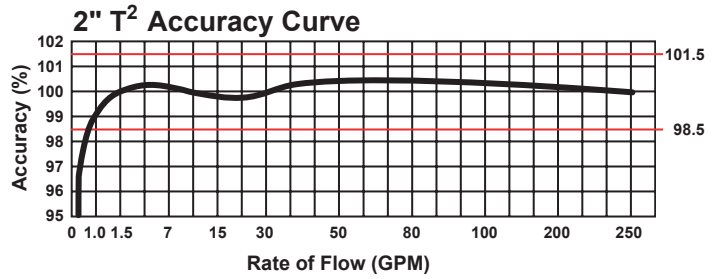
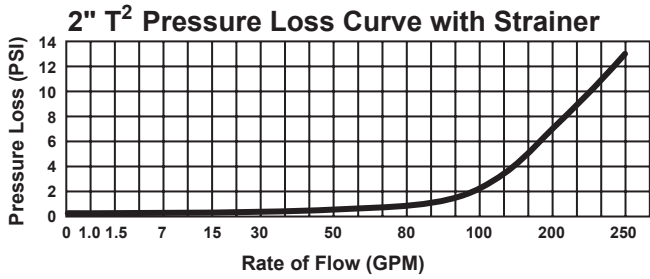
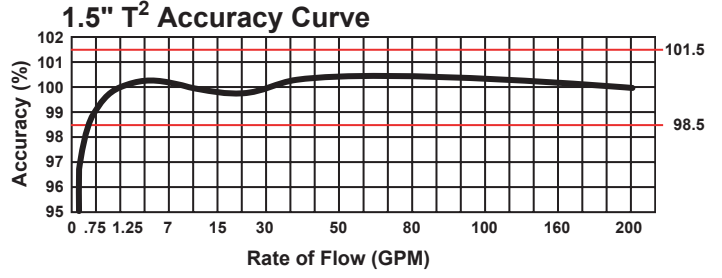
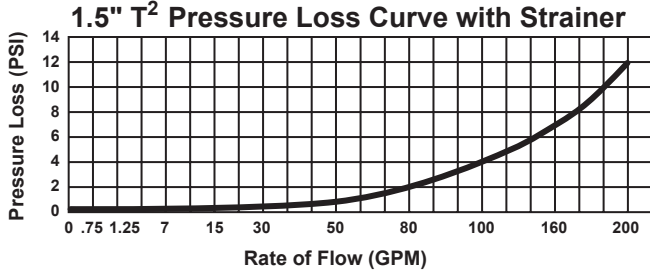
Meter and Pipe Size	Normal Operating Range		Connections	A	B	C	D	E	F	G	H	J	Net Weight	Shipping Weight
1-1/2" DN 40mm	1.25 gpm .28 m ³ /hr	200 gpm 45 m ³ /hr	Flanged	13" 330mm	7-7/8" 200mm	15/16" 24mm	5-7/16" 138mm	2-5/16" 59mm	4" 102mm	2	5/8" 16mm	1" 25mm	18.8 lbs. 8.53 kg.	22.5 lbs. 10.2 kg.
2" DN 50mm	1.5 gpm .34 m ³ /hr	250 gpm 57 m ³ /hr	Flanged	17" 432mm	7-7/8" 200mm	1" 25mm	5-3/4" 146mm	2-5/16" 59mm	4-1/2" 114mm	2	3/4" 19mm	1-1/2" 38mm	27.4 lbs. 12.4 kg.	34.5 lbs. 15.6 kg.
2" w/o Strainer DN 50mm	1.5 gpm .34 m ³ /hr	250 gpm 57 m ³ /hr	Flanged	10" 254mm	7-7/8" 200mm	1" 25mm	5-3/4" 146mm	2-5/16" 59mm	4-1/2" 114mm	2	3/4" 19mm	N/A	17.4 lbs. 7.9 kg.	24.5 lbs. 11.1 kg.
3" DN 80mm	2.5 gpm .57 m ³ /hr	650 gpm 148 m ³ /hr	Flanged	19" 483mm	8-3/4" 225mm	3/4" 19mm	7-7/8" 200mm	4-1/8" 105mm	6" 153mm	4	5/8" 16mm	2" 51mm	48.5 lbs. 22.0 kg.	57.4 lbs. 26.0 kg.
4" DN 100mm	3.0 gpm .68 m ³ /hr	1250 gpm 284 m ³ /hr	Flanged	23" 584mm	11- 3/16" 284mm	15/16" 24mm	9-1/8" 232mm	4-3/4" 121mm	7-1/2" 191mm	8	5/8" 16mm	2" 51mm	67.9 lbs. 30.8 kg.	75.8 lbs. 34.4 kg.
6" DN 150mm	4 gpm .91 m ³ /hr	2500 gpm 568 m ³ /hr	Flanged	27" 686mm	13-1/4" 337mm	15/16" 24mm	11" 279mm	5-3/4" 146mm	9-1/2" 241mm	8	3/4" 19mm	2" 51mm	140 lbs. 63.5 kg.	165 lbs. 74.8 kg.
8" DN 200mm	5 gpm 1.1 m ³ /hr	3500 gpm 795 m ³ /hr	Flanged	30-1/8" 765mm	15" 381mm	11/16" 17mm	13-1/2" 343mm	6-3/4" 171mm	11-3/4" 298mm	8	3/4" 19mm	2" 51mm	471 lbs. 214 kg.	521 lbs. 236 kg.
10" DN 250mm	6 gpm 1.4 m ³ /hr	5500 gpm 1249 m ³ /hr	Flanged	41-1/8" 1045mm	19" 483mm	11/16" 17mm	16" 406mm	8-1/2" 216mm	14-1/4" 362mm	12	7/8" 22mm	2" 51mm	685 lbs. 311 kg.	745 lbs. 338 kg.

Specifications

Service	Measurement of potable and reclaim water. Storage temperature: -22F (-30C) to 155F (68.3C) Operating temperatures: Air: -22F (-30C) to 150F (65.6C) Water: 33F (0.6C) to 80F (26.7)	Pressure Loss	1-1/2": 6.9 psi @ 160 GPM (0.48 bar @ 36 m ³ /hr) 2": 7.0 psi @ 200 GPM (0.48 bar @ 45 m ³ /hr) 3": 5.1 psi @ 500 GPM (0.35 bar @ 114 m ³ /hr) 4": 8.7 psi @ 1000 GPM (0.60 bar @ 227 m ³ /hr) 6": 8.2 psi @ 2000 GPM (0.57 bar @ 454 m ³ /hr) 8": 5.1 psi @ 3500 GPM (0.35 bar @ 795 m ³ /hr) 10": 7.2 psi @ 5500 GPM (0.50 bar @ 1249 m ³ /hr)
Operating Range (100% ± 1.5%)	1-1/2": 1.25 - 200 GPM (0.28 - 45 m ³ /hr) 2": 1.5 - 250 GPM (0.34 - 57 m ³ /hr) 3": 2.5 - 650 GPM (0.57 - 148 m ³ /hr) 4": 3 - 1250 GPM (0.68 - 284 m ³ /hr) 6": 4 - 2500 GPM (0.91 - 568 m ³ /hr) 8": 5 - 3500 GPM (1.1 - 795 m ³ /hr) 10": 6 - 5500 GPM (1.4 - 1249 m ³ /hr)	Maximum Operating Pressure	200 PSI (13.8 bar)
Low flow (95% - 101.5%)	1-1/2": 0.75 GPM (0.17 m ³ /hr) 2": 1.0 GPM (0.23 m ³ /hr) 3": 1.5 GPM (0.34 m ³ /hr) 4": 2.0 GPM (0.45 m ³ /hr) 6": 2.5 GPM (0.57 m ³ /hr) 8": 4 GPM (0.91 m ³ /hr) 10": 5 GPM (1.1 m ³ /hr)	Flange Connections	U.S. ANSI B16.1 / AWWA Class 125
Maximum Continuous Operation	1-1/2": 160 GPM (36 m ³ /hr) 2": 200 GPM (45 m ³ /hr) 3": 500 GPM (114 m ³ /hr) 4": 1000 GPM (227 m ³ /hr) 6": 2000 GPM (454 m ³ /hr) 8": 3500 GPM (795 m ³ /hr) 10": 5500 GPM (1249 m ³ /hr)	Test Ports	NPT
Maximum Intermittent Operation	1-1/2": 200 GPM (45 m ³ /hr) 2": 250 GPM (57 m ³ /hr) 3": 650 GPM (148 m ³ /hr) 4": 1250 GPM (284 m ³ /hr) 6": 2500 GPM (568 m ³ /hr) 8": 4700 GPM (1067 m ³ /hr) 10": 7000 GPM (1590 m ³ /hr)	Register	Fully electronic sealed register with programmable registration (Gal. /Cu.Ft. / Cu. Mtr. / Imp. Gal. / Acre Ft.) Programmable AMR/AMI reading and pulse outputs Guaranteed 10-year battery life
		NSF Approved Materials	Maincase: Coated Ductile Iron Measuring Chamber: Thermoplastic Rotor "Floating Ball": Thermoplastic Radial Bearings: Hybrid Thermoplastic Thrust Bearings: Sapphire/Ceramic Jewel Magnets: Ceramic Strainer Screen: Stainless Steel Strainer Cover: Coated Ductile Iron Test Plug: Stainless Steel



Head Loss Curves





Head Loss Curves

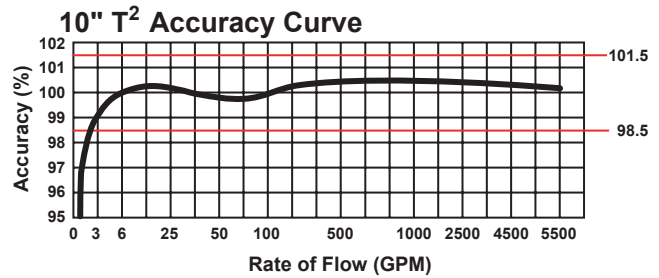
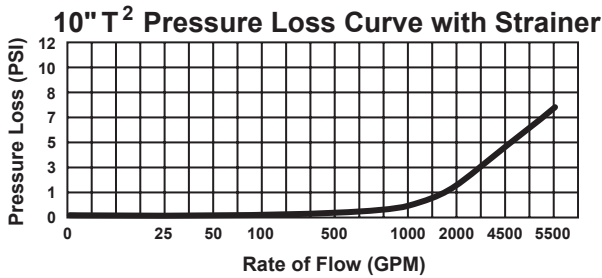
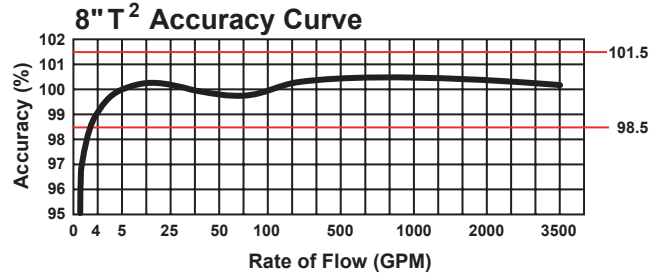
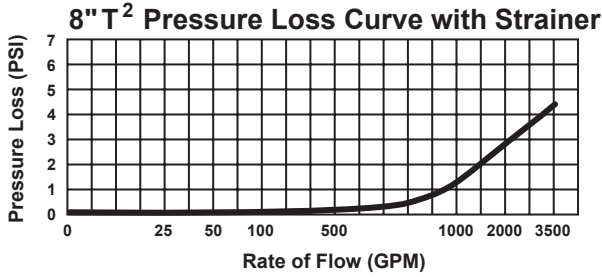
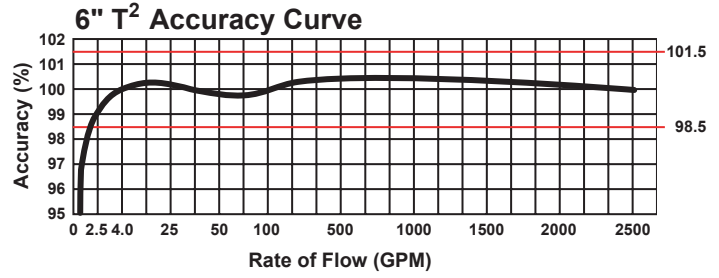
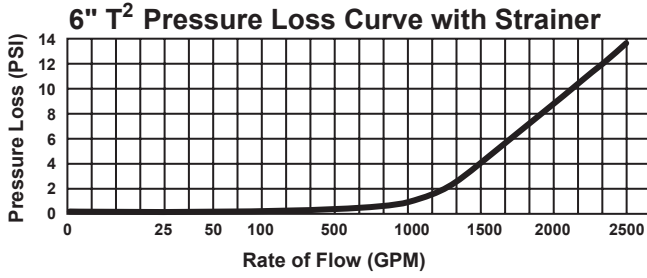


EXHIBIT 17B

1-1/2", 2", 3", 4", 6", 8" and 10" Sizes

SCOPE

These specifications set forth the minimum acceptable design criteria and performance requirements for Turbine-type cold water meters including the following potential service applications and general considerations:

- Intended where a moderately wide flow range is anticipated
- Measurement of water usage for typical billing applications
- Measurement intended for typical commercial and industrial applications
- Measurement of low flow usage above OMNI C² Meter threshold levels
- Measurement of constant medium to extended high flow usage

CONFORMANCE TO STANDARDS

The meter package shall meet or exceed all requirements of ANSI/AWWA Standard C701 for Class II turbine meter assemblies. Each meter assembly shall be performance tested to ensure compliance.

The meter package shall meet or exceed all requirements of NSF/ANSI Standard 61, Annex F and G.

MAINCASES

The meter maincase shall be of epoxy coated ductile iron composition. The epoxy coating shall be provided as standard fusion-bonded and adhere to NSF for non-lead regulation compliance.

PERFORMANCE

The meter assembly shall have performance capability of continuous operation up to the rated maximum flows as listed below without affecting long-term accuracy or causing any undue component wear. The meter assembly shall also provide a 25% flow capacity in excess of the maximum flows listed for intermittent flow demands. Maximum headloss through the meter/strainer assembly shall not exceed those listed in the following table per meter size.

OPERATING CHARACTERISTICS

Meter Size	Low Flow (95% Min.)	Operating Range (98.5 - 101.5%)	Intermittent Flows (98.5 - 101.5%)	Pressure Loss (Not to Exceed)
1-1/2"	.75 GPM	1.25 to 160 GPM	200 GPM	6.9 PSI @ 160 GPM
2"	1.0 GPM	1.5 to 200 GPM	250 GPM	7.0 PSI @ 200 GPM
3"	1.5 GPM	2.5 to 500 GPM	650 GPM	5.1 PSI @ 500 GPM
4"	2.0 GPM	3.0 to 1000 GPM	1250 GPM	8.7 PSI @ 1000 GPM
6"	2.5 GPM	4.0 to 2000 GPM	2500 GPM	8.2 PSI @ 2000 GPM
8"	4 GPM	5 to 3500 GPM	4700 GPM	5.1 PSI @ 3500 GPM
10"	5 GPM	6 to 5500 GPM	7000 GPM	7.2 PSI @ 5500 GPM

MEASURING CHAMBER

The measuring chamber shall consist of a measuring element, removable housing, and all-electronic register. The measuring element shall be mounted on a horizontal, stationary stainless steel shaft with sleeve bearings and be essentially weightless in water. The measuring element comes integrated with the advanced Floating Ball Technology design. The measuring chamber shall be capable of operating within the above listed accuracy limits without calibration when transferred from one maincase to another of the same size. The measuring shall be so configured to capture all flows as specified above.

DIRECT MAGNETIC DRIVE SYSTEM

The direct magnetic drive shall occur between the motion of the measuring element blade position and the electronic register. The OMNI direct drive system with Floating Ball Technology is designed to extend service life, enhance low flow sensitivity and provide extended flow capacity and overall accuracy of the meter assembly. Any and all additional intermediate, magnetic or mechanical, drive couplings are not acceptable.

ELECTRONIC REGISTER

The meter's register is all-electronic and does not contain any mechanical gearing to display flow and accurate totalization. The electronic register includes the following partial list of features:

- AMR resolution units fully programmable
- Pulse output frequency fully programmable
- Integral data logging capability
- Integral resettable accuracy testing feature
- Large, easy-to-read LCD display
- 10-year battery life guarantee

MAXIMUM OPERATING PRESSURE

The meter assembly shall operate properly without leakage, damage, or malfunction up to a maximum working pressure of 200 pounds per square inch (psig).

STRAINERS

The meter strainer shall be integral and cast as part of the meter's maincase. The strainer's screen shall have a minimum net open area of at least two (2) times the pipe opening and be a V-shaped configuration for the purpose of maintaining a full unobstructed flow pattern. The strainer body shall be a coated ductile iron fusion-bonded epoxy identical to that of the meter's maincase. All fasteners shall be stainless steel capable of maintaining the following static pressure ratings and physical dimensions:

Meter Size	Maximum Operating Pressure	Centerline to Strainer Base	Overall Length (Not to Exceed)
1-1/2"	200 PSIG	2-5/16 INCHES	13 INCHES
2"	200 PSIG	2-5/16 INCHES	17 INCHES
3"	200 PSIG	4-1/8 INCHES	19 INCHES
4"	200 PSIG	4-3/4 INCHES	23 INCHES
6"	200 PSIG	5-3/4 INCHES	27 INCHES
8"	200 PSIG	6-3/4 INCHES	30-1/8 INCHES
10"	200 PSIG	8-1/2 INCHES	41-1/8 INCHES

STRAIGHTENING VANES

A straightening vane assembly is mandatory and shall be positioned directly upstream of the measuring element. The straightening vane assembly shall be an integral component of the measuring chamber.

CONNECTIONS

Flanges for the 1-1/2" and 2" size meter assemblies shall be of the 2-bolt oval flange configuration. The 3", 4", 6", 8" and 10" size meter assemblies shall have flanges of the Class 125 round type, flat faced and shall conform to ANSI B16.1 for specified diameter, drilling and thickness.

CERTIFICATIONS AND MARKINGS

All sizes of meter packages shall display the sizes, model, manufacturer name, and direction of flow. Such display shall be cast on the side of the meter maincase.

GUARANTEE AND MAINTENANCE PROGRAM

Meters shall be guaranteed against defects in material and workmanship for a period of one (1) year from date of shipment. In addition, the meter supplier shall submit nationally published literature clearly outlining its factory maintenance program and current price schedule covering complete measuring chamber exchange.

INTENT

Subject meter specifications are designed to establish minimum guidelines for selecting an extremely critical metering device. Areas of concern to be evaluated in the selection process include, but are not limited to, ease of installation, operational features and benefits, readability and future system maintenance expense. A design, which reflects longevity of proper operation in all elements and high degree of sustained accuracy within the entire range of the meter assembly, is to be considered mandatory. Enhanced accuracy levels and performance are desired and will not be compromised.

RECOMMENDATION

Sensus

OMNI T² Meter

© All products purchased and services performed are subject to Sensus' terms of sale, available at either; <http://na.sensus.com/TC/TermsConditions.pdf> or 1-800-METER-IT. Sensus reserves the right to modify these terms and conditions in its own discretion without notice to the customer.

This document is for informational purposes only, and SENSUS MAKES NO EXPRESS WARRANTIES IN THIS DOCUMENT. FURTHERMORE, THERE ARE NO IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, WARRANTIES AS TO FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY. ANY USE OF THE PRODUCTS THAT IS NOT SPECIFICALLY PERMITTED HEREIN IS PROHIBITED.

EXHIBIT 18



APPLICATION FOR ENCROACHMENT PERMIT

KYTC KEPT #: _____

SECTION 1: APPLICANT CONTACT INFORMATION

APPLICANT Estill County Water District	ADDRESS 76 Cedar Grove Rd	CITY Irvine	STATE KY	ZIP 40336
EMAIL www.estillcountywater.com		PHONE # 606.723.3795		
CONTACT NAME 1 Andrea Miller	EMAIL a.miller@estillcountywater.com	CELL #		
CONTACT NAME 2 (if applicable) Alan Bowman, Project Engineer	EMAIL abowman@hkbell.com	PHONE # 859.278.5412		
		CELL #		

SECTION 2: PROPOSED WORK LOCATION

ADDRESS 76 Cedar Grove Rd	CITY Irvine	STATE Kentucky	ZIP 40336	
COUNTY Estill	ROUTE # KY 89	MILE POINT 19.0	LONGITUDE (X) 37.788917	LATITUDE (Y) -84.028342

ADDITIONAL LOCATION INFORMATION:

See attached Dry Branch Zone Area Plan Sheet

FOR KYTC USE ONLY

PERMIT TYPE: Air Right Entrance Utilities Vegetation Removal Other: _____

ACCESS: Full Partial by Permit **LOCATION:** Left Right Crossing

SECTION 3: GENERAL DESCRIPTION OF WORK

Zone meter installation on existing waterline.

THE UNDERSIGNED APPLICANT(s), being duly authorized representative(s) or owner(s), DO AGREE TO ALL ORIGINAL UNEDITED TERMS AND CONDITIONS ON THE TC 99-1A, pages 1-4.

SIGNATURE

DATE

This is not a permit unless and until the applicant(s) receives an approved TC 99-1B from KYTC. This application shall become void if not approved by the cancellation date. The cancellation date shall be a minimum of one year from the date the applicant submits their application.



APPLICATION FOR ENCROACHMENT PERMIT

TERMS AND CONDITIONS

1. The permit, including this application and all related and accompanying documents and drawings making up the permit, remains in effect and is binding upon the Applicant/Permittee, its successors and assigns, as long as the encroachment(s) exists and also until the permittee is finally relieved by the Department of Highways from all its obligations.
2. Applicant shall meet all requirements of the Clean Water Act if the project will disturb one acre or more, the applicant shall obtain a KPDES KYR10 Permit from the Kentucky Division of Water. All disturbed areas shall meet the requirements of the Department of Highway's Standard Specifications, Sections 212 and 213, as amended.
3. **INDEMNITY:**
 - A. **PERFORMANCE BOND:** The permittee shall provide to the Department a performance bond according to the Permits Manual, Section PE-203 as a guarantee of conformance with the Department's Encroachment Permit requirements.
 - B. **PAYMENT BOND:** At the discretion of the department, a payment bond shall be required of the permittee to ensure payment of liquidated damages assessed to the permittee.
 - C. **LIABILITY INSURANCE:** Liability insurance shall be required of the permittee (in an amount approved by the department) to cover all liabilities associated with the encroachment.
 - D. It shall be the responsibility of the permittee, its successors and assigns, to maintain all indemnities in full force and effect until the permittee is authorized to release the indemnity by the Department.
4. A copy of this application and all related documents making up the approved permit shall be given to the applicant and shall be made readily available for review at the work site at all times.
5. Perpetual maintenance of the encroachment is the responsibility of the permittee, its successors and assigns, with the approval of the Department as required, unless otherwise stated.
6. Permittee, its successors and assigns, shall comply with and agree to be bound by the requirements and terms of (a) this application and all related documents making up the approved permit, (b) by the Department's Permits Manual, and (c) by the Manual on Uniform Traffic Control Devices, both manuals as revised to and in effect on the date of issuance of the permit, all of which documents are made a part thereof by this reference. Compliance by the permittee, its successors and assigns, with subsequent revisions to applicable provisions of either manual or other policy of the Department may be made a condition of allowing the encroachment to persist under the permit.
7. Permittee agrees that this and any encroachment may be ordered removed by the Department at any time, and for any reason, upon thirty days written notice to the last known address of the applicant or to the address at the location of the encroachment. The permittee agrees that the cost of removing and of restoring the associated right-of-way is the responsibility of the permittee, its successors and assigns.
8. Permittee, its successors and assigns, agree that if the Department determines that motor vehicular safety deficiencies develop as a result of the installation or use of the encroachment, the permittee, its successors and assigns, shall provide and bear the expenses to adjust, relocate, or reconstruct the facilities, add signs, auxiliary lanes, or other corrective measures reasonably deemed necessary by the Department within a reasonable time after receipt of a written notice of such deficiency. The period within which such adjustments, relocations, additions, modifications, or other corrective measures must be completed will be specified in the notice.
9. Where traffic signals are required as a condition of granting the requested permit or are thereafter required to correct motor vehicular safety deficiencies, as determined by the Department, the costs for signal equipment and installation(s) shall be borne by the permittee, its successors and assigns and the Department in its reasonable discretion and only in accordance with the Department's current policy set forth in the Traffic Operations Manual and Permits Manual. Any modifications to the permittee's entrance necessary to accommodate signalization (including necessary easement(s) on private property) shall be the responsibility of the permittee, its successors and assigns, at no expense to the Department.



APPLICATION FOR ENCROACHMENT PERMIT

10. The requested encroachment shall not infringe on the frontage rights of an abutting owner without their written consent as hereinafter described. Each abutting owner shall express their consent, which shall be binding on their successors and assigns, by the submission of a notarized statement as follows, "I (we), _____, hereby consent to the granting of the permit requested by the applicant along Route _____, which permit does affect frontage rights along my (our) adjacent real property." By signature(s) _____, subscribed and sworn by _____, on this date _____.
11. The permit, if approved, is subject to the agreement that it shall not interfere with any similar rights or permit(s) previously granted to any other party, except as otherwise provided by law.
12. Permittee shall include documentation which describes the facilities to be constructed. Permittee, its successors and assigns, agree as a condition of the granting of the permit to construct and maintain any and all permitted facilities or other encroachments in strict accordance with the submitted and approved permit documentation and the policies and procedures of the Department. Permittee, its successors and assigns, shall not use facilities authorized herein in any manner contrary to that prescribed by the approved permit. Only normal usage as contemplated by the parties and by this application and routine maintenance are authorized by the permit.
13. Permittee, its successors and assigns, at all times from the date permitted work is commenced until such time as all permitted facilities or other encroachments are removed from the right-of-way and the right-of-way restored, **shall defend, protect, indemnify and save harmless** the Department from any and all liability claims and demands arising out of the work, encroachment, maintenance, or other undertaking by the permittee, its successors and assigns, related or undertaken pursuant to the granted permit, due to any claimed act or omission by the permittee, its servants, agents, employees, or contractors. This provision shall not inure to the benefit of any third party nor operate to enlarge any liability of the Department beyond that existing at common law or otherwise if this right to indemnity did not exist.
14. Upon a violation of any provision of the permit, or otherwise in its reasonable discretion, the Department may require additional action by the permittee, its successors and assigns, up to and including the removal of the encroachment and restoration of the right-of-way. In the event additional actions required by the Department under the permit are not undertaken as ordered and within a reasonable time, the Department may in its discretion cause those or other additional corrective actions to be undertaken and the Department shall recover the reasonable costs of those corrective actions from the permittee, its successors and assigns.
15. Permittee, its successors and assigns, shall use the encroachment premises in compliance with all requirements of federal law and regulation, including those imposed pursuant to Title VI of the Civil Right Act of 1964 (42 U.S.C. § 2000d et seq.) and the related regulations of the U.S. Department of Transportation in Title 49 C.F.R. Part 21, all as amended.
16. Permittee, its successors and assigns, agree that if the Department determines it is necessary for the facilities or other encroachment authorized by the permit to be removed, relocated or reconstructed in connection with the reconstruction, relocation or improvement of a highway, the Department may revoke permission for the encroachment to remain under the permit and may order its removal, relocation or reconstruction by the permittee, its successors and assigns, at the expense of the permittee, except where the Department is required by law to pay any or all of those costs.



APPLICATION FOR ENCROACHMENT PERMIT

17. Permittee agrees that the authorized permit is personal to the permittee and shall remain in effect until such time as (a) the permittee's rights to the adjoining real property to have benefitted from the requested encroachment have been relinquished, (b) until all permit obligations have been assumed by appropriate successors and assigns, and (c) unless and until a written release from permit obligations has been granted by the Department. The permit and its requirements shall also bind the real property to have benefitted from the requested encroachment to the extent permitted by law. The permit and the related encroachment become the responsibility of the successors and assigns of the permittee and the successors and assigns of each property owner benefitting from the encroachment, or the encroachment may not otherwise permissibly continue to be maintained on the right-of-way. (Does not apply to utility encroachments serving the general public.)
18. If work authorized by the permit is within a highway construction project in the construction phase, it shall be the responsibility of the permittee to make personal contact with the Department's Engineer on the project in order to coordinate all permitted work with the Department's prime contractor on the project.
19. This permit is not intended to, nor shall it, affect, alter or alleviate any requirement imposed upon the permittee, its successors and assigns, by any other agency.
20. Permittee, its successors and assigns, agree to contain and maintain all dirt, mud, and other debris emanating from the encroachment away from the surrounding right-of-way and the travel way of the highway hereafter and at all times that its obligations under the permit remain in effect.
21. Before You Dig: The contractor is instructed to call 1-800-752-6007 to reach KY 811, the One-Call system for information on the location of existing underground utilities. The call is to be placed a minimum of two (2) and no more than ten (10) business days prior to excavation. The contractor should be aware that the owners of underground facilities are not required to be members of the KY 811 One-Call Before U-Dig (BUD) service. The contractor must coordinate excavation with the utility owners, including those whom do not subscribe to KY 811. It may be necessary for the contractor to contact the County Clerk to determine what utility companies have facilities in the area.



To Submit a Locate Request
24 Hours a Day, Seven Days a Week:
Call 811 or 800-752-6007

SHEET NO.	4 OF 8
DATE	NOVEMBER 2019
CONTRACT NO.	371-19-01
DIVISION	-

ZONE METERS
 DRY BRANCH ZONE,
 AND KY 89 ZONE

PHASE 11 SYSTEM IMPROVEMENTS
 ESTILL COUNTY WATER DISTRICT #1
 IRVINE, KENTUCKY

Lexington, KY (609) 278-5412
 Hopkinsville, KY (270) 866-5466
 Asheville, NC (828) 774-5499



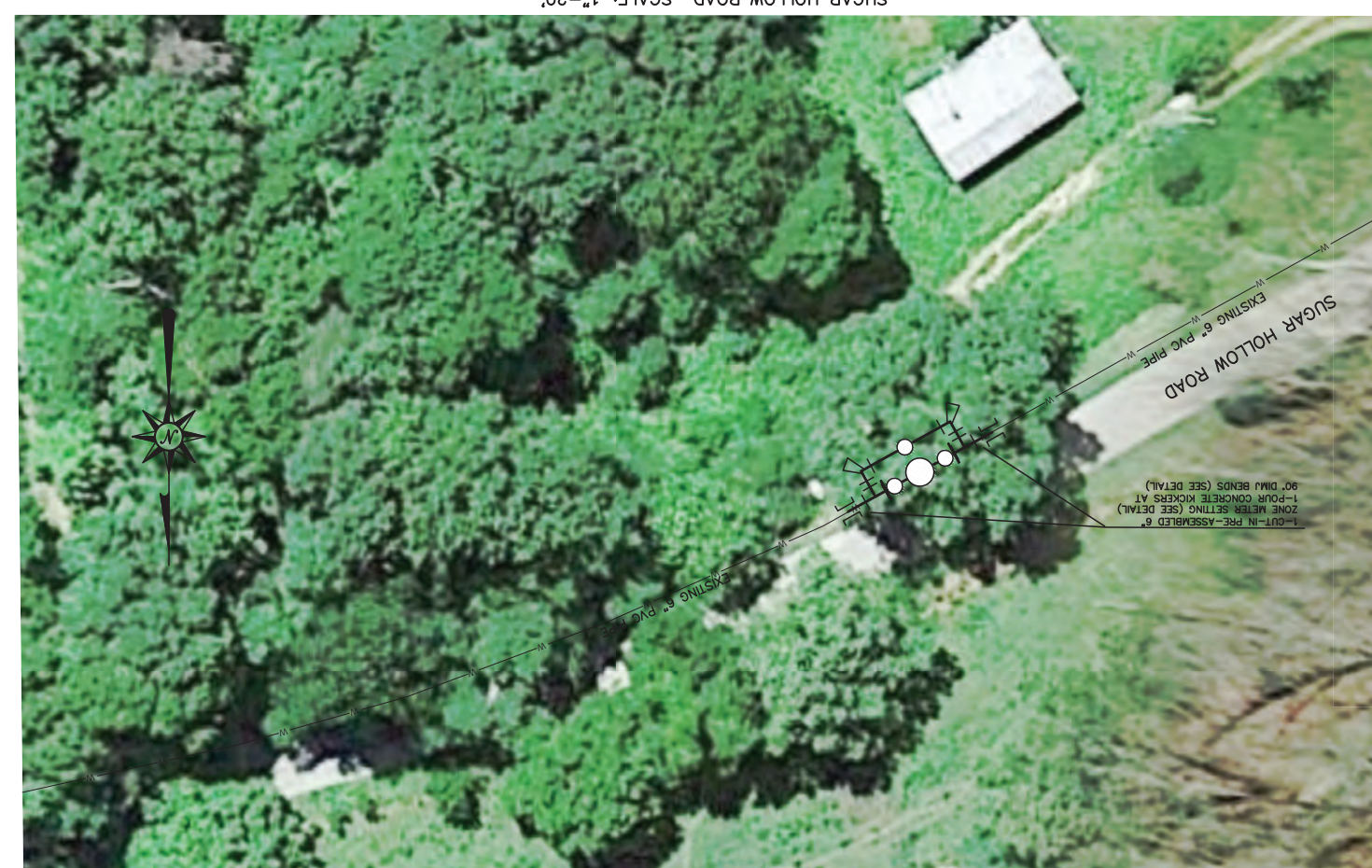
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SCALE: AS NOTED
 GRAPHIC SCALE

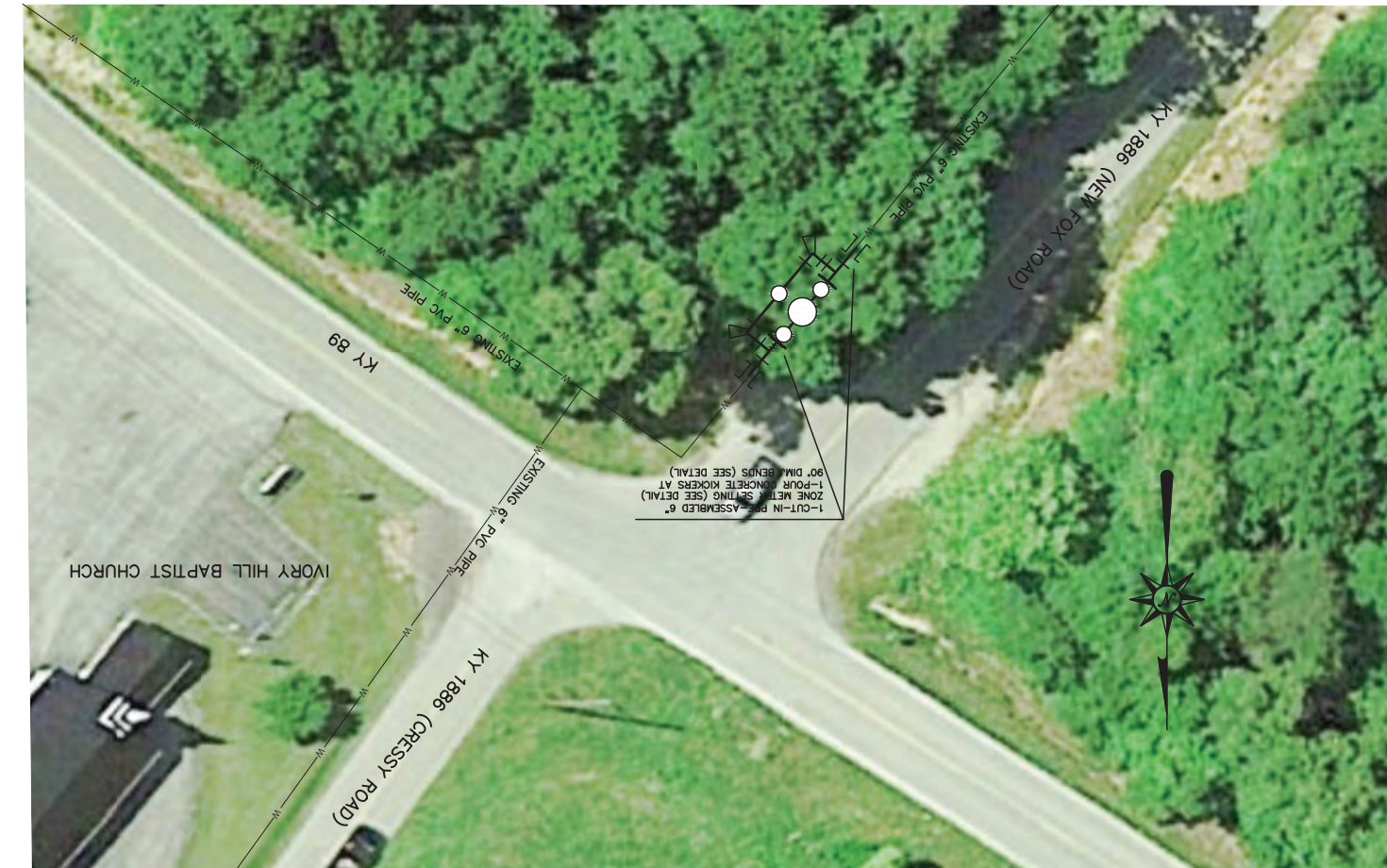
DESIGNER	RAB	DATE	BY	REVISION



KY 89 SCALE: 1"=20'



KY 89 / KY 1886 SCALE: 1"=20'





APPLICATION FOR ENCROACHMENT PERMIT

KYTC KEPT #: _____

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APPLICANT Estill County Water District	ADDRESS 76 Cedar Grove Rd	CITY Irvine		
EMAIL www.estillcountywater.com		STATE KY	ZIP 40336	
CONTACT NAME 1 Andrea Miller	EMAIL a.miller@estillcountywater.com	PHONE #	606.723.3795	
		CELL #		
CONTACT NAME 2 (if applicable) Alan Bowman, Project Engineer	EMAIL abowman@hkbell.com	PHONE #	859.278.5412	
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ADDITIONAL LOCATION INFORMATION:

See attached Dry Branch Zone Area Plan Sheet

FOR KYTC USE ONLY

PERMIT TYPE: Air Right Entrance Utilities Vegetation Removal Other: _____

ACCESS: Full Partial by Permit **LOCATION:** Left Right Crossing

SECTION 3: GENERAL DESCRIPTION OF WORK

Zone meter installation on existing waterline.

THE UNDERSIGNED APPLICANT(s), being duly authorized representative(s) or owner(s), DO AGREE TO ALL ORIGINAL UNEDITED TERMS AND CONDITIONS ON THE TC 99-1A, pages 1-4.

Andrea B Miller

SIGNATURE

3/19/2020

DATE

This is not a permit unless and until the applicant(s) receives an approved TC 99-1B from KYTC. This application shall become void if not approved by the cancellation date. The cancellation date shall be a minimum of one year from the date the applicant submits their application.



APPLICATION FOR ENCROACHMENT PERMIT

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21. Before You Dig: The contractor is instructed to call 1-800-752-6007 to reach KY 811, the One-Call system for information on the location of existing underground utilities. The call is to be placed a minimum of two (2) and no more than ten (10) business days prior to excavation. The contractor should be aware that the owners of underground facilities are not required to be members of the KY 811 One-Call Before U-Dig (BUD) service. The contractor must coordinate excavation with the utility owners, including those whom do not subscribe to KY 811. It may be necessary for the contractor to contact the County Clerk to determine what utility companies have facilities in the area.



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Call 811 or 800-752-6007

DIVISION	-
CONTRACT NO.	371-19-01
DATE	NOVEMBER 2019
SHEET NO.	4 OF 8

ZONE METERS
 DRY BRANCH ZONE,
 AND KY 89 ZONE

PHASE 11 SYSTEM IMPROVEMENTS
 ESTILL COUNTY WATER DISTRICT #1
 IRVINE, KENTUCKY

Lexington, KY (609) 278-5412
 Hopkinsville, KY (270) 866-5466
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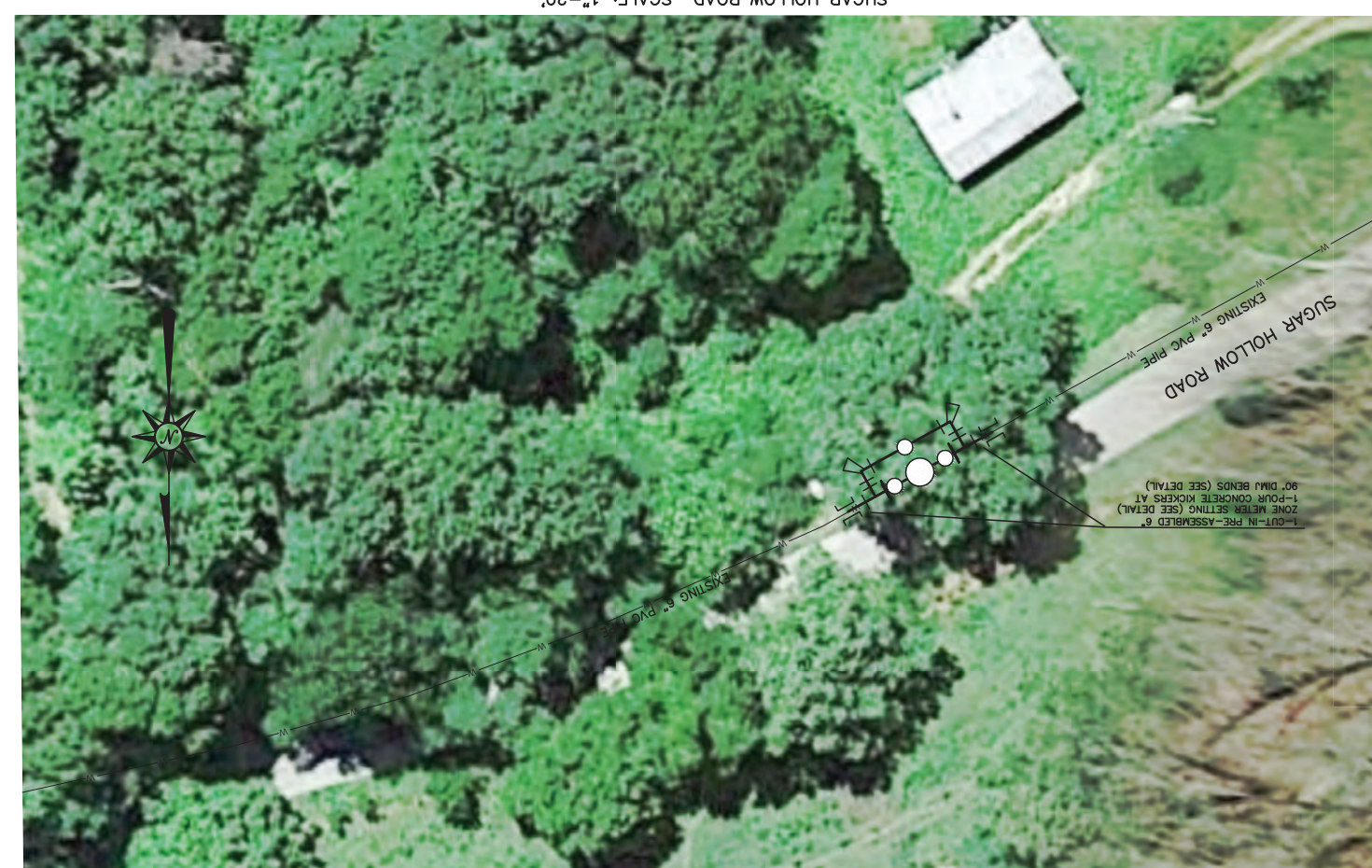
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SCALE: AS NOTED
 GRAPHIC SCALE

DESIGNER	RAB	DATE	BY	REVISION



KY 89 SCALE: 1"=20'



KY 89 / KY 1886 SCALE: 1"=20'





APPLICATION FOR ENCROACHMENT PERMIT

KYTC KEPT #: _____

SECTION 1: APPLICANT CONTACT INFORMATION

APPLICANT Estill County Water District	ADDRESS 76 Cedar Grove Rd	CITY Irvine	STATE KY	ZIP 40336
EMAIL www.estillcountywater.com				
CONTACT NAME 1 Andrea Miller	EMAIL a.miller@estillcountywater.com	PHONE # 606.723.3795	CELL #	
CONTACT NAME 2 (if applicable) Alan Bowman, Project Engineer	EMAIL abowman@hkbell.com	PHONE # 859.278.5412	CELL #	

SECTION 2: PROPOSED WORK LOCATION

ADDRESS 76 Cedar Grove Rd	CITY Irvine	STATE Kentucky	ZIP 40336
COUNTY Estill	ROUTE # KY 1353	MILE POINT 2.8	LONGITUDE (X) 37.703763
			LATITUDE (Y) -84.063996

ADDITIONAL LOCATION INFORMATION:

See attached KY 52 Cut Zone Area Plan Sheet

FOR KYTC USE ONLY

PERMIT TYPE: Air Right Entrance Utilities Vegetation Removal Other: _____

ACCESS: Full Partial by Permit **LOCATION:** Left Right Crossing

SECTION 3: GENERAL DESCRIPTION OF WORK

Zone meter installation on existing waterline.

THE UNDERSIGNED APPLICANT(s), being duly authorized representative(s) or owner(s), DO AGREE TO ALL ORIGINAL UNEDITED TERMS AND CONDITIONS ON THE TC 99-1A, pages 1-4.

Andrea B Miller

SIGNATURE

3/19/2020

DATE

This is not a permit unless and until the applicant(s) receives an approved TC 99-1B from KYTC. This application shall become void if not approved by the cancellation date. The cancellation date shall be a minimum of one year from the date the applicant submits their application.



APPLICATION FOR ENCROACHMENT PERMIT

TERMS AND CONDITIONS

1. The permit, including this application and all related and accompanying documents and drawings making up the permit, remains in effect and is binding upon the Applicant/Permittee, its successors and assigns, as long as the encroachment(s) exists and also until the permittee is finally relieved by the Department of Highways from all its obligations.
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3. **INDEMNITY:**
 - A. **PERFORMANCE BOND:** The permittee shall provide to the Department a performance bond according to the Permits Manual, Section PE-203 as a guarantee of conformance with the Department's Encroachment Permit requirements.
 - B. **PAYMENT BOND:** At the discretion of the department, a payment bond shall be required of the permittee to ensure payment of liquidated damages assessed to the permittee.
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9. Where traffic signals are required as a condition of granting the requested permit or are thereafter required to correct motor vehicular safety deficiencies, as determined by the Department, the costs for signal equipment and installation(s) shall be borne by the permittee, its successors and assigns and the Department in its reasonable discretion and only in accordance with the Department's current policy set forth in the Traffic Operations Manual and Permits Manual. Any modifications to the permittee's entrance necessary to accommodate signalization (including necessary easement(s) on private property) shall be the responsibility of the permittee, its successors and assigns, at no expense to the Department.



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11. The permit, if approved, is subject to the agreement that it shall not interfere with any similar rights or permit(s) previously granted to any other party, except as otherwise provided by law.
12. Permittee shall include documentation which describes the facilities to be constructed. Permittee, its successors and assigns, agree as a condition of the granting of the permit to construct and maintain any and all permitted facilities or other encroachments in strict accordance with the submitted and approved permit documentation and the policies and procedures of the Department. Permittee, its successors and assigns, shall not use facilities authorized herein in any manner contrary to that prescribed by the approved permit. Only normal usage as contemplated by the parties and by this application and routine maintenance are authorized by the permit.
13. Permittee, its successors and assigns, at all times from the date permitted work is commenced until such time as all permitted facilities or other encroachments are removed from the right-of-way and the right-of-way restored, **shall defend, protect, indemnify and save harmless** the Department from any and all liability claims and demands arising out of the work, encroachment, maintenance, or other undertaking by the permittee, its successors and assigns, related or undertaken pursuant to the granted permit, due to any claimed act or omission by the permittee, its servants, agents, employees, or contractors. This provision shall not inure to the benefit of any third party nor operate to enlarge any liability of the Department beyond that existing at common law or otherwise if this right to indemnity did not exist.
14. Upon a violation of any provision of the permit, or otherwise in its reasonable discretion, the Department may require additional action by the permittee, its successors and assigns, up to and including the removal of the encroachment and restoration of the right-of-way. In the event additional actions required by the Department under the permit are not undertaken as ordered and within a reasonable time, the Department may in its discretion cause those or other additional corrective actions to be undertaken and the Department shall recover the reasonable costs of those corrective actions from the permittee, its successors and assigns.
15. Permittee, its successors and assigns, shall use the encroachment premises in compliance with all requirements of federal law and regulation, including those imposed pursuant to Title VI of the Civil Right Act of 1964 (42 U.S.C. § 2000d et seq.) and the related regulations of the U.S. Department of Transportation in Title 49 C.F.R. Part 21, all as amended.
16. Permittee, its successors and assigns, agree that if the Department determines it is necessary for the facilities or other encroachment authorized by the permit to be removed, relocated or reconstructed in connection with the reconstruction, relocation or improvement of a highway, the Department may revoke permission for the encroachment to remain under the permit and may order its removal, relocation or reconstruction by the permittee, its successors and assigns, at the expense of the permittee, except where the Department is required by law to pay any or all of those costs.



APPLICATION FOR ENCROACHMENT PERMIT

17. Permittee agrees that the authorized permit is personal to the permittee and shall remain in effect until such time as (a) the permittee's rights to the adjoining real property to have benefitted from the requested encroachment have been relinquished, (b) until all permit obligations have been assumed by appropriate successors and assigns, and (c) unless and until a written release from permit obligations has been granted by the Department. The permit and its requirements shall also bind the real property to have benefitted from the requested encroachment to the extent permitted by law. The permit and the related encroachment become the responsibility of the successors and assigns of the permittee and the successors and assigns of each property owner benefitting from the encroachment, or the encroachment may not otherwise permissibly continue to be maintained on the right-of-way. (Does not apply to utility encroachments serving the general public.)
18. If work authorized by the permit is within a highway construction project in the construction phase, it shall be the responsibility of the permittee to make personal contact with the Department's Engineer on the project in order to coordinate all permitted work with the Department's prime contractor on the project.
19. This permit is not intended to, nor shall it, affect, alter or alleviate any requirement imposed upon the permittee, its successors and assigns, by any other agency.
20. Permittee, its successors and assigns, agree to contain and maintain all dirt, mud, and other debris emanating from the encroachment away from the surrounding right-of-way and the travel way of the highway hereafter and at all times that its obligations under the permit remain in effect.
21. Before You Dig: The contractor is instructed to call 1-800-752-6007 to reach KY 811, the One-Call system for information on the location of existing underground utilities. The call is to be placed a minimum of two (2) and no more than ten (10) business days prior to excavation. The contractor should be aware that the owners of underground facilities are not required to be members of the KY 811 One-Call Before U-Dig (BUD) service. The contractor must coordinate excavation with the utility owners, including those whom do not subscribe to KY 811. It may be necessary for the contractor to contact the County Clerk to determine what utility companies have facilities in the area.



To Submit a Locate Request
24 Hours a Day, Seven Days a Week:
Call 811 or 800-752-6007



KY 1457/OPOSSUM RUN ROAD SCALE: 1"=20'



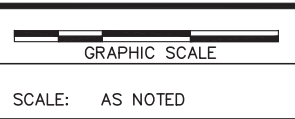
KY 1457 SCALE: 1"=20'



KY 52/KY1353 SCALE: 1"=20'

6/15/2020

DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
CHECKED	RAB			
APPROVED	RAB			



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Lexington, KY (859) 278-5412
 Hopkinsville, KY (270) 886-5466
 Asheville, NC (828) 774-5499

PHASE 11 SYSTEM IMPROVEMENTS
 ESTILL COUNTY WATER DISTRICT #1
 IRVINE, KENTUCKY

ZONE METERS
 SAND HILL ZONE
 AND
 KY 52 ZONE

DIVISION	-
CONTRACT NO.	371-19-01
DATE	NOVEMBER 2019
SHEET NO.	5 OF 8



APPLICATION FOR ENCROACHMENT PERMIT

KYTC KEPT #: _____

SECTION 1: APPLICANT CONTACT INFORMATION

APPLICANT Estill County Water District	ADDRESS 76 Cedar Grove Rd	CITY Irvine	STATE KY	ZIP 40336
EMAIL www.estillcountywater.com				
CONTACT NAME 1 Andrea Miller	EMAIL a.miller@estillcountywater.com	PHONE # 606.723.3795	CELL #	
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ADDRESS 76 Cedar Grove Rd	CITY Irvine	STATE Kentucky	ZIP 40336
COUNTY Estill	ROUTE # KY 1457	MILE POINT 0.53	LONGITUDE (X) 37.710260
			LATITUDE (Y) -84.013718

ADDITIONAL LOCATION INFORMATION:

See attached Sand Hill Zone Area Plan Sheet

FOR KYTC USE ONLY

PERMIT TYPE: Air Right Entrance Utilities Vegetation Removal Other: _____

ACCESS: Full Partial by Permit **LOCATION:** Left Right Crossing

SECTION 3: GENERAL DESCRIPTION OF WORK

Zone meter installation on existing waterline.

THE UNDERSIGNED APPLICANT(s), being duly authorized representative(s) or owner(s), DO AGREE TO ALL ORIGINAL UNEDITED TERMS AND CONDITIONS ON THE TC 99-1A, pages 1-4.

Andrea B Miller

SIGNATURE

3/19/2020

DATE

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APPLICATION FOR ENCROACHMENT PERMIT

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KY 1457/OPOSSUM RUN ROAD SCALE: 1"=20'



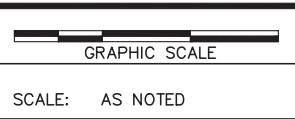
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CHECKED	RAB			
APPROVED	RAB			



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PHASE 11 SYSTEM IMPROVEMENTS
 ESTILL COUNTY WATER DISTRICT #1
 IRVINE, KENTUCKY

ZONE METERS
 SAND HILL ZONE
 AND
 KY 52 ZONE

DIVISION	-
CONTRACT NO.	371-19-01
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ADDITIONAL LOCATION INFORMATION:

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PERMIT TYPE: Air Right Entrance Utilities Vegetation Removal Other: _____

ACCESS: Full Partial by Permit **LOCATION:** Left Right Crossing

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13. Permittee, its successors and assigns, at all times from the date permitted work is commenced until such time as all permitted facilities or other encroachments are removed from the right-of-way and the right-of-way restored, **shall defend, protect, indemnify and save harmless** the Department from any and all liability claims and demands arising out of the work, encroachment, maintenance, or other undertaking by the permittee, its successors and assigns, related or undertaken pursuant to the granted permit, due to any claimed act or omission by the permittee, its servants, agents, employees, or contractors. This provision shall not inure to the benefit of any third party nor operate to enlarge any liability of the Department beyond that existing at common law or otherwise if this right to indemnity did not exist.
14. Upon a violation of any provision of the permit, or otherwise in its reasonable discretion, the Department may require additional action by the permittee, its successors and assigns, up to and including the removal of the encroachment and restoration of the right-of-way. In the event additional actions required by the Department under the permit are not undertaken as ordered and within a reasonable time, the Department may in its discretion cause those or other additional corrective actions to be undertaken and the Department shall recover the reasonable costs of those corrective actions from the permittee, its successors and assigns.
15. Permittee, its successors and assigns, shall use the encroachment premises in compliance with all requirements of federal law and regulation, including those imposed pursuant to Title VI of the Civil Right Act of 1964 (42 U.S.C. § 2000d et seq.) and the related regulations of the U.S. Department of Transportation in Title 49 C.F.R. Part 21, all as amended.
16. Permittee, its successors and assigns, agree that if the Department determines it is necessary for the facilities or other encroachment authorized by the permit to be removed, relocated or reconstructed in connection with the reconstruction, relocation or improvement of a highway, the Department may revoke permission for the encroachment to remain under the permit and may order its removal, relocation or reconstruction by the permittee, its successors and assigns, at the expense of the permittee, except where the Department is required by law to pay any or all of those costs.



APPLICATION FOR ENCROACHMENT PERMIT

17. Permittee agrees that the authorized permit is personal to the permittee and shall remain in effect until such time as (a) the permittee's rights to the adjoining real property to have benefitted from the requested encroachment have been relinquished, (b) until all permit obligations have been assumed by appropriate successors and assigns, and (c) unless and until a written release from permit obligations has been granted by the Department. The permit and its requirements shall also bind the real property to have benefitted from the requested encroachment to the extent permitted by law. The permit and the related encroachment become the responsibility of the successors and assigns of the permittee and the successors and assigns of each property owner benefitting from the encroachment, or the encroachment may not otherwise permissibly continue to be maintained on the right-of-way. (Does not apply to utility encroachments serving the general public.)
18. If work authorized by the permit is within a highway construction project in the construction phase, it shall be the responsibility of the permittee to make personal contact with the Department's Engineer on the project in order to coordinate all permitted work with the Department's prime contractor on the project.
19. This permit is not intended to, nor shall it, affect, alter or alleviate any requirement imposed upon the permittee, its successors and assigns, by any other agency.
20. Permittee, its successors and assigns, agree to contain and maintain all dirt, mud, and other debris emanating from the encroachment away from the surrounding right-of-way and the travel way of the highway hereafter and at all times that its obligations under the permit remain in effect.
21. Before You Dig: The contractor is instructed to call 1-800-752-6007 to reach KY 811, the One-Call system for information on the location of existing underground utilities. The call is to be placed a minimum of two (2) and no more than ten (10) business days prior to excavation. The contractor should be aware that the owners of underground facilities are not required to be members of the KY 811 One-Call Before U-Dig (BUD) service. The contractor must coordinate excavation with the utility owners, including those whom do not subscribe to KY 811. It may be necessary for the contractor to contact the County Clerk to determine what utility companies have facilities in the area.



To Submit a Locate Request
24 Hours a Day, Seven Days a Week:
Call 811 or 800-752-6007



KY 1457/OPOSSUM RUN ROAD SCALE: 1"=20'



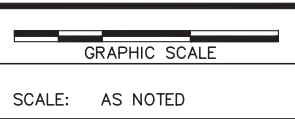
KY 1457 SCALE: 1"=20'



KY 52/KY1353 SCALE: 1"=20'

6/15/2020

DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
CHECKED	RAB			
APPROVED	RAB			



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Lexington, KY (859) 278-5412
 Hopkinsville, KY (270) 886-5466
 Asheville, NC (828) 774-5499

PHASE 11 SYSTEM IMPROVEMENTS
 ESTILL COUNTY WATER DISTRICT #1
 IRVINE, KENTUCKY

ZONE METERS
 SAND HILL ZONE
 AND
 KY 52 ZONE

DIVISION	-
CONTRACT NO.	371-19-01
DATE	NOVEMBER 2019
SHEET NO.	5 OF 8



APPLICATION FOR ENCROACHMENT PERMIT

KYTC KEPT #: _____

SECTION 1: APPLICANT CONTACT INFORMATION

APPLICANT Estill County Water District	ADDRESS 76 Cedar Grove Rd	CITY Irvine		
EMAIL www.estillcountywater.com		STATE KY	ZIP 40336	
CONTACT NAME 1 Andrea Miller	EMAIL a.miller@estillcountywater.com	PHONE #	606.723.3795	
		CELL #		
CONTACT NAME 2 (if applicable) Alan Bowman, Project Engineer	EMAIL abowman@hkbell.com	PHONE #	859.278.5412	
		CELL #		

SECTION 2: PROPOSED WORK LOCATION

ADDRESS 76 Cedar Grove Rd	CITY Irvine	STATE Kentucky	ZIP 40336	
COUNTY Estill	ROUTE # KY 89	MILE POINT 11.27	LONGITUDE (X) 37.695188	LATITUDE (Y) -83.977315

ADDITIONAL LOCATION INFORMATION:
 See attached South Irvine Zone Area Plan Sheet

FOR KYTC USE ONLY

PERMIT TYPE: Air Right Entrance Utilities Vegetation Removal Other: _____

ACCESS: Full Partial by Permit **LOCATION:** Left Right Crossing

SECTION 3: GENERAL DESCRIPTION OF WORK

Zone meter installation on existing waterline.

THE UNDERSIGNED APPLICANT(s), being duly authorized representative(s) or owner(s), DO AGREE TO ALL ORIGINAL UNEDITED TERMS AND CONDITIONS ON THE TC 99-1A, pages 1-4.

Andrea B Miller

SIGNATURE

3/19/2020

DATE

This is not a permit unless and until the applicant(s) receives an approved TC 99-1B from KYTC. This application shall become void if not approved by the cancellation date. The cancellation date shall be a minimum of one year from the date the applicant submits their application.



APPLICATION FOR ENCROACHMENT PERMIT

TERMS AND CONDITIONS

1. The permit, including this application and all related and accompanying documents and drawings making up the permit, remains in effect and is binding upon the Applicant/Permittee, its successors and assigns, as long as the encroachment(s) exists and also until the permittee is finally relieved by the Department of Highways from all its obligations.
2. Applicant shall meet all requirements of the Clean Water Act if the project will disturb one acre or more, the applicant shall obtain a KPDES KYR10 Permit from the Kentucky Division of Water. All disturbed areas shall meet the requirements of the Department of Highway's Standard Specifications, Sections 212 and 213, as amended.
3. **INDEMNITY:**
 - A. **PERFORMANCE BOND:** The permittee shall provide to the Department a performance bond according to the Permits Manual, Section PE-203 as a guarantee of conformance with the Department's Encroachment Permit requirements.
 - B. **PAYMENT BOND:** At the discretion of the department, a payment bond shall be required of the permittee to ensure payment of liquidated damages assessed to the permittee.
 - C. **LIABILITY INSURANCE:** Liability insurance shall be required of the permittee (in an amount approved by the department) to cover all liabilities associated with the encroachment.
 - D. It shall be the responsibility of the permittee, its successors and assigns, to maintain all indemnities in full force and effect until the permittee is authorized to release the indemnity by the Department.
4. A copy of this application and all related documents making up the approved permit shall be given to the applicant and shall be made readily available for review at the work site at all times.
5. Perpetual maintenance of the encroachment is the responsibility of the permittee, its successors and assigns, with the approval of the Department as required, unless otherwise stated.
6. Permittee, its successors and assigns, shall comply with and agree to be bound by the requirements and terms of (a) this application and all related documents making up the approved permit, (b) by the Department's Permits Manual, and (c) by the Manual on Uniform Traffic Control Devices, both manuals as revised to and in effect on the date of issuance of the permit, all of which documents are made a part thereof by this reference. Compliance by the permittee, its successors and assigns, with subsequent revisions to applicable provisions of either manual or other policy of the Department may be made a condition of allowing the encroachment to persist under the permit.
7. Permittee agrees that this and any encroachment may be ordered removed by the Department at any time, and for any reason, upon thirty days written notice to the last known address of the applicant or to the address at the location of the encroachment. The permittee agrees that the cost of removing and of restoring the associated right-of-way is the responsibility of the permittee, its successors and assigns.
8. Permittee, its successors and assigns, agree that if the Department determines that motor vehicular safety deficiencies develop as a result of the installation or use of the encroachment, the permittee, its successors and assigns, shall provide and bear the expenses to adjust, relocate, or reconstruct the facilities, add signs, auxiliary lanes, or other corrective measures reasonably deemed necessary by the Department within a reasonable time after receipt of a written notice of such deficiency. The period within which such adjustments, relocations, additions, modifications, or other corrective measures must be completed will be specified in the notice.
9. Where traffic signals are required as a condition of granting the requested permit or are thereafter required to correct motor vehicular safety deficiencies, as determined by the Department, the costs for signal equipment and installation(s) shall be borne by the permittee, its successors and assigns and the Department in its reasonable discretion and only in accordance with the Department's current policy set forth in the Traffic Operations Manual and Permits Manual. Any modifications to the permittee's entrance necessary to accommodate signalization (including necessary easement(s) on private property) shall be the responsibility of the permittee, its successors and assigns, at no expense to the Department.



APPLICATION FOR ENCROACHMENT PERMIT

10. The requested encroachment shall not infringe on the frontage rights of an abutting owner without their written consent as hereinafter described. Each abutting owner shall express their consent, which shall be binding on their successors and assigns, by the submission of a notarized statement as follows, "I (we), _____, hereby consent to the granting of the permit requested by the applicant along Route _____, which permit does affect frontage rights along my (our) adjacent real property." By signature(s) _____, subscribed and sworn by _____, on this date _____.
11. The permit, if approved, is subject to the agreement that it shall not interfere with any similar rights or permit(s) previously granted to any other party, except as otherwise provided by law.
12. Permittee shall include documentation which describes the facilities to be constructed. Permittee, its successors and assigns, agree as a condition of the granting of the permit to construct and maintain any and all permitted facilities or other encroachments in strict accordance with the submitted and approved permit documentation and the policies and procedures of the Department. Permittee, its successors and assigns, shall not use facilities authorized herein in any manner contrary to that prescribed by the approved permit. Only normal usage as contemplated by the parties and by this application and routine maintenance are authorized by the permit.
13. Permittee, its successors and assigns, at all times from the date permitted work is commenced until such time as all permitted facilities or other encroachments are removed from the right-of-way and the right-of-way restored, **shall defend, protect, indemnify and save harmless** the Department from any and all liability claims and demands arising out of the work, encroachment, maintenance, or other undertaking by the permittee, its successors and assigns, related or undertaken pursuant to the granted permit, due to any claimed act or omission by the permittee, its servants, agents, employees, or contractors. This provision shall not inure to the benefit of any third party nor operate to enlarge any liability of the Department beyond that existing at common law or otherwise if this right to indemnity did not exist.
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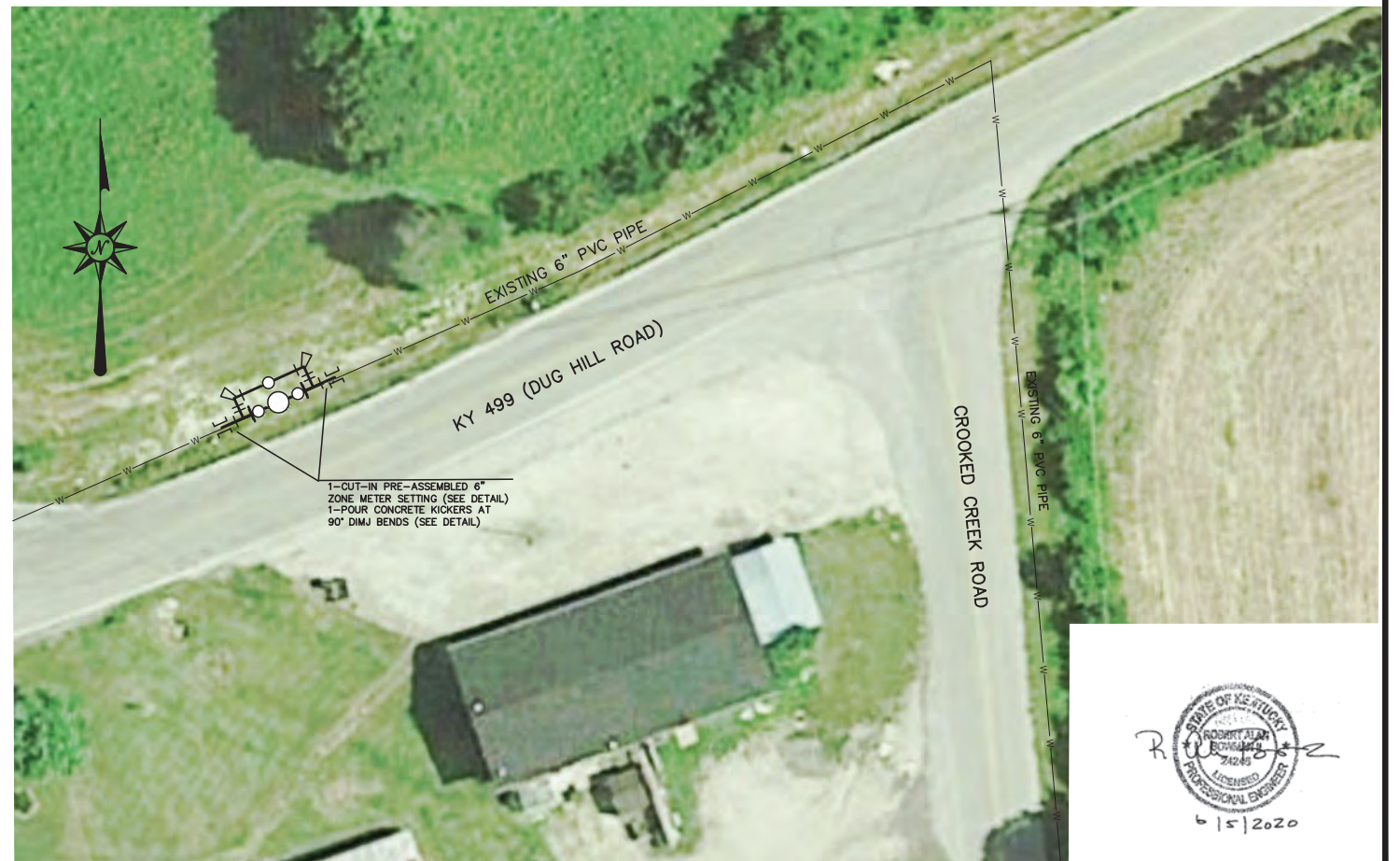
SWEET LICK ROAD SCALE: 1"=20'



SOUTH IRVINE ZONE NEW RIVER PUMP STATION SCALE: 1"=20'



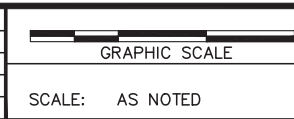
WISEMANTOWN ZONE STAND ALONE SCALE: 1"=20'



CROOKED CREEK ZONE NEW REPLACEMENT SCALE: 1"=20'



DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
CHECKED	RAB			
APPROVED	RAB			



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Lexington, KY (859) 278-5412
 Hopkinsville, KY (270) 886-5466
 Asheville, NC (828) 774-5499

PHASE 11 SYSTEM IMPROVEMENTS
 ESTILL COUNTY WATER DISTRICT #1
 IRVINE, KENTUCKY

ZONE METERS
 SWEET LICK ROAD,
 SOUTH IRVINE ZONE, WISEMANTOWN ZONE
 AND CROOKED CREEK ZONE

DIVISION	-
CONTRACT NO.	371-19-01
DATE	NOVEMBER 2019
SHEET NO.	6 OF 8



APPLICATION FOR ENCROACHMENT PERMIT

KYTC KEPT #: _____

SECTION 1: APPLICANT CONTACT INFORMATION

APPLICANT Estill County Water District	ADDRESS 76 Cedar Grove Rd	CITY Irvine		
EMAIL www.estillcountywater.com		STATE KY	ZIP 40336	
CONTACT NAME 1 Andrea Miller	EMAIL a.miller@estillcountywater.com	PHONE # 606.723.3795	CELL #	
CONTACT NAME 2 (if applicable) Alan Bowman, Project Engineer	EMAIL abowman@hkbell.com	PHONE # 859.278.5412	CELL #	

SECTION 2: PROPOSED WORK LOCATION

ADDRESS 76 Cedar Grove Rd	CITY Irvine	STATE Kentucky	ZIP 40336	
COUNTY Estill	ROUTE # KY 499	MILE POINT 5.14	LONGITUDE (X) 37.673875	LATITUDE (Y) -84.020583

ADDITIONAL LOCATION INFORMATION:
 See attached Crooked Creek Zone Area Plan Sheet

FOR KYTC USE ONLY

PERMIT TYPE: Air Right Entrance Utilities Vegetation Removal Other: _____

ACCESS: Full Partial by Permit **LOCATION:** Left Right Crossing

SECTION 3: GENERAL DESCRIPTION OF WORK

Zone meter installation on existing waterline.

THE UNDERSIGNED APPLICANT(s), being duly authorized representative(s) or owner(s), DO AGREE TO ALL ORIGINAL UNEDITED TERMS AND CONDITIONS ON THE TC 99-1A, pages 1-4.

Andrea B Miller

SIGNATURE

3/19/2020

DATE

This is not a permit unless and until the applicant(s) receives an approved TC 99-1B from KYTC. This application shall become void if not approved by the cancellation date. The cancellation date shall be a minimum of one year from the date the applicant submits their application.



APPLICATION FOR ENCROACHMENT PERMIT

TERMS AND CONDITIONS

1. The permit, including this application and all related and accompanying documents and drawings making up the permit, remains in effect and is binding upon the Applicant/Permittee, its successors and assigns, as long as the encroachment(s) exists and also until the permittee is finally relieved by the Department of Highways from all its obligations.
2. Applicant shall meet all requirements of the Clean Water Act if the project will disturb one acre or more, the applicant shall obtain a KPDES KYR10 Permit from the Kentucky Division of Water. All disturbed areas shall meet the requirements of the Department of Highway's Standard Specifications, Sections 212 and 213, as amended.
3. **INDEMNITY:**
 - A. **PERFORMANCE BOND:** The permittee shall provide to the Department a performance bond according to the Permits Manual, Section PE-203 as a guarantee of conformance with the Department's Encroachment Permit requirements.
 - B. **PAYMENT BOND:** At the discretion of the department, a payment bond shall be required of the permittee to ensure payment of liquidated damages assessed to the permittee.
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To Submit a Locate Request
24 Hours a Day, Seven Days a Week:
Call 811 or 800-752-6007



SWEET LICK ROAD SCALE: 1"=20'



SOUTH IRVINE ZONE NEW RIVER PUMP STATION SCALE: 1"=20'



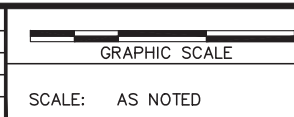
WISEMANTOWN ZONE STAND ALONE SCALE: 1"=20'



CROOKED CREEK ZONE NEW REPLACEMENT SCALE: 1"=20'



DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
CHECKED	RAB			
APPROVED	RAB			



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PHASE 11 SYSTEM IMPROVEMENTS
ESTILL COUNTY WATER DISTRICT #1
IRVINE, KENTUCKY

ZONE METERS
SWEET LICK ROAD,
SOUTH IRVINE ZONE, WISEMANTOWN ZONE
AND CROOKED CREEK ZONE

DIVISION	-
CONTRACT NO.	371-19-01
DATE	NOVEMBER 2019
SHEET NO.	6 OF 8



APPLICATION FOR ENCROACHMENT PERMIT

KYTC KEPT #: _____

SECTION 1: APPLICANT CONTACT INFORMATION

APPLICANT Estill County Water District	ADDRESS 76 Cedar Grove Rd	CITY Irvine	
EMAIL www.estillcountywater.com		STATE KY	ZIP 40336
CONTACT NAME 1 Andrea Miller	EMAIL a.miller@estillcountywater.com	PHONE # 606.723.3795	CELL #
CONTACT NAME 2 (if applicable) Alan Bowman, Project Engineer	EMAIL abowman@hkbell.com	PHONE # 859.278.5412	CELL #

SECTION 2: PROPOSED WORK LOCATION

ADDRESS 76 Cedar Grove Rd	CITY Irvine	STATE Kentucky	ZIP 40336
COUNTY Estill	ROUTE # KY 89	MILE POINT 0.7	LONGITUDE (X) 37.587934
			LATITUDE (Y) -83.964675

ADDITIONAL LOCATION INFORMATION:
 See attached Jackson Zone Area Plan Sheet

FOR KYTC USE ONLY

PERMIT TYPE: Air Right Entrance Utilities Vegetation Removal Other: _____

ACCESS: Full Partial by Permit **LOCATION:** Left Right Crossing

SECTION 3: GENERAL DESCRIPTION OF WORK

Zone meter installation on existing waterline.

THE UNDERSIGNED APPLICANT(s), being duly authorized representative(s) or owner(s), DO AGREE TO ALL ORIGINAL UNEDITED TERMS AND CONDITIONS ON THE TC 99-1A, pages 1-4.

SIGNATURE

DATE

This is not a permit unless and until the applicant(s) receives an approved TC 99-1B from KYTC. This application shall become void if not approved by the cancellation date. The cancellation date shall be a minimum of one year from the date the applicant submits their application.



APPLICATION FOR ENCROACHMENT PERMIT

TERMS AND CONDITIONS

1. The permit, including this application and all related and accompanying documents and drawings making up the permit, remains in effect and is binding upon the Applicant/Permittee, its successors and assigns, as long as the encroachment(s) exists and also until the permittee is finally relieved by the Department of Highways from all its obligations.
2. Applicant shall meet all requirements of the Clean Water Act if the project will disturb one acre or more, the applicant shall obtain a KPDES KYR10 Permit from the Kentucky Division of Water. All disturbed areas shall meet the requirements of the Department of Highway's Standard Specifications, Sections 212 and 213, as amended.
3. **INDEMNITY:**
 - A. **PERFORMANCE BOND:** The permittee shall provide to the Department a performance bond according to the Permits Manual, Section PE-203 as a guarantee of conformance with the Department's Encroachment Permit requirements.
 - B. **PAYMENT BOND:** At the discretion of the department, a payment bond shall be required of the permittee to ensure payment of liquidated damages assessed to the permittee.
 - C. **LIABILITY INSURANCE:** Liability insurance shall be required of the permittee (in an amount approved by the department) to cover all liabilities associated with the encroachment.
 - D. It shall be the responsibility of the permittee, its successors and assigns, to maintain all indemnities in full force and effect until the permittee is authorized to release the indemnity by the Department.
4. A copy of this application and all related documents making up the approved permit shall be given to the applicant and shall be made readily available for review at the work site at all times.
5. Perpetual maintenance of the encroachment is the responsibility of the permittee, its successors and assigns, with the approval of the Department as required, unless otherwise stated.
6. Permittee, its successors and assigns, shall comply with and agree to be bound by the requirements and terms of (a) this application and all related documents making up the approved permit, (b) by the Department's Permits Manual, and (c) by the Manual on Uniform Traffic Control Devices, both manuals as revised to and in effect on the date of issuance of the permit, all of which documents are made a part thereof by this reference. Compliance by the permittee, its successors and assigns, with subsequent revisions to applicable provisions of either manual or other policy of the Department may be made a condition of allowing the encroachment to persist under the permit.
7. Permittee agrees that this and any encroachment may be ordered removed by the Department at any time, and for any reason, upon thirty days written notice to the last known address of the applicant or to the address at the location of the encroachment. The permittee agrees that the cost of removing and of restoring the associated right-of-way is the responsibility of the permittee, its successors and assigns.
8. Permittee, its successors and assigns, agree that if the Department determines that motor vehicular safety deficiencies develop as a result of the installation or use of the encroachment, the permittee, its successors and assigns, shall provide and bear the expenses to adjust, relocate, or reconstruct the facilities, add signs, auxiliary lanes, or other corrective measures reasonably deemed necessary by the Department within a reasonable time after receipt of a written notice of such deficiency. The period within which such adjustments, relocations, additions, modifications, or other corrective measures must be completed will be specified in the notice.
9. Where traffic signals are required as a condition of granting the requested permit or are thereafter required to correct motor vehicular safety deficiencies, as determined by the Department, the costs for signal equipment and installation(s) shall be borne by the permittee, its successors and assigns and the Department in its reasonable discretion and only in accordance with the Department's current policy set forth in the Traffic Operations Manual and Permits Manual. Any modifications to the permittee's entrance necessary to accommodate signalization (including necessary easement(s) on private property) shall be the responsibility of the permittee, its successors and assigns, at no expense to the Department.



APPLICATION FOR ENCROACHMENT PERMIT

10. The requested encroachment shall not infringe on the frontage rights of an abutting owner without their written consent as hereinafter described. Each abutting owner shall express their consent, which shall be binding on their successors and assigns, by the submission of a notarized statement as follows, "I (we), _____, hereby consent to the granting of the permit requested by the applicant along Route _____, which permit does affect frontage rights along my (our) adjacent real property." By signature(s) _____, subscribed and sworn by _____, on this date _____.
11. The permit, if approved, is subject to the agreement that it shall not interfere with any similar rights or permit(s) previously granted to any other party, except as otherwise provided by law.
12. Permittee shall include documentation which describes the facilities to be constructed. Permittee, its successors and assigns, agree as a condition of the granting of the permit to construct and maintain any and all permitted facilities or other encroachments in strict accordance with the submitted and approved permit documentation and the policies and procedures of the Department. Permittee, its successors and assigns, shall not use facilities authorized herein in any manner contrary to that prescribed by the approved permit. Only normal usage as contemplated by the parties and by this application and routine maintenance are authorized by the permit.
13. Permittee, its successors and assigns, at all times from the date permitted work is commenced until such time as all permitted facilities or other encroachments are removed from the right-of-way and the right-of-way restored, **shall defend, protect, indemnify and save harmless** the Department from any and all liability claims and demands arising out of the work, encroachment, maintenance, or other undertaking by the permittee, its successors and assigns, related or undertaken pursuant to the granted permit, due to any claimed act or omission by the permittee, its servants, agents, employees, or contractors. This provision shall not inure to the benefit of any third party nor operate to enlarge any liability of the Department beyond that existing at common law or otherwise if this right to indemnity did not exist.
14. Upon a violation of any provision of the permit, or otherwise in its reasonable discretion, the Department may require additional action by the permittee, its successors and assigns, up to and including the removal of the encroachment and restoration of the right-of-way. In the event additional actions required by the Department under the permit are not undertaken as ordered and within a reasonable time, the Department may in its discretion cause those or other additional corrective actions to be undertaken and the Department shall recover the reasonable costs of those corrective actions from the permittee, its successors and assigns.
15. Permittee, its successors and assigns, shall use the encroachment premises in compliance with all requirements of federal law and regulation, including those imposed pursuant to Title VI of the Civil Right Act of 1964 (42 U.S.C. § 2000d et seq.) and the related regulations of the U.S. Department of Transportation in Title 49 C.F.R. Part 21, all as amended.
16. Permittee, its successors and assigns, agree that if the Department determines it is necessary for the facilities or other encroachment authorized by the permit to be removed, relocated or reconstructed in connection with the reconstruction, relocation or improvement of a highway, the Department may revoke permission for the encroachment to remain under the permit and may order its removal, relocation or reconstruction by the permittee, its successors and assigns, at the expense of the permittee, except where the Department is required by law to pay any or all of those costs.



APPLICATION FOR ENCROACHMENT PERMIT

17. Permittee agrees that the authorized permit is personal to the permittee and shall remain in effect until such time as (a) the permittee's rights to the adjoining real property to have benefitted from the requested encroachment have been relinquished, (b) until all permit obligations have been assumed by appropriate successors and assigns, and (c) unless and until a written release from permit obligations has been granted by the Department. The permit and its requirements shall also bind the real property to have benefitted from the requested encroachment to the extent permitted by law. The permit and the related encroachment become the responsibility of the successors and assigns of the permittee and the successors and assigns of each property owner benefitting from the encroachment, or the encroachment may not otherwise permissibly continue to be maintained on the right-of-way. (Does not apply to utility encroachments serving the general public.)
18. If work authorized by the permit is within a highway construction project in the construction phase, it shall be the responsibility of the permittee to make personal contact with the Department's Engineer on the project in order to coordinate all permitted work with the Department's prime contractor on the project.
19. This permit is not intended to, nor shall it, affect, alter or alleviate any requirement imposed upon the permittee, its successors and assigns, by any other agency.
20. Permittee, its successors and assigns, agree to contain and maintain all dirt, mud, and other debris emanating from the encroachment away from the surrounding right-of-way and the travel way of the highway hereafter and at all times that its obligations under the permit remain in effect.
21. Before You Dig: The contractor is instructed to call 1-800-752-6007 to reach KY 811, the One-Call system for information on the location of existing underground utilities. The call is to be placed a minimum of two (2) and no more than ten (10) business days prior to excavation. The contractor should be aware that the owners of underground facilities are not required to be members of the KY 811 One-Call Before U-Dig (BUD) service. The contractor must coordinate excavation with the utility owners, including those whom do not subscribe to KY 811. It may be necessary for the contractor to contact the County Clerk to determine what utility companies have facilities in the area.



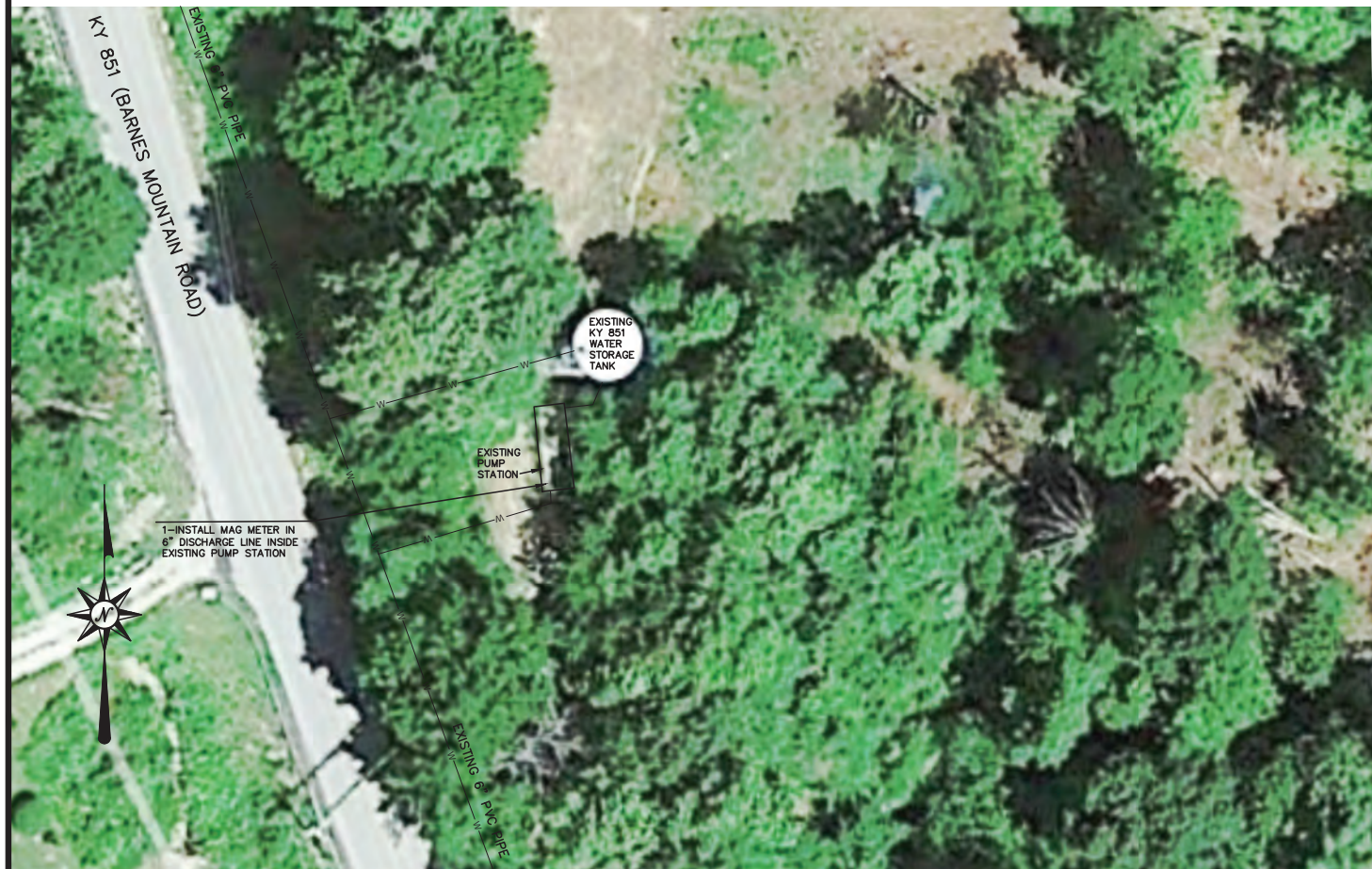
To Submit a Locate Request
24 Hours a Day, Seven Days a Week:
Call 811 or 800-752-6007



CLAY ISSACS ROAD SCALE: 1"=20'



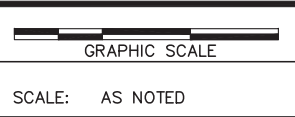
KY 89 SCALE: 1"=20'



KY 851 TANK SCALE: 1"=20'

STATE OF KENTUCKY
 ROBERT J. HARRIS
 202205
 LICENSED PROFESSIONAL ENGINEER
 6/5/2020

DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
CHECKED	RAB			
APPROVED	RAB			



ALL RIGHTS RESERVED
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Lexington, KY (859) 278-5412
 Hopkinsville, KY (270) 886-5466
 Asheville, NC (828) 774-5499

PHASE 11 SYSTEM IMPROVEMENTS
 ESTILL COUNTY WATER DISTRICT #1
 IRVINE, KENTUCKY

ZONE METERS
 RED LICK ZONE,
 JACKSON ZONE AND
 BARNES/851 MOUNTAIN ZONE

DIVISION	-
CONTRACT NO.	371-19-01
DATE	NOVEMBER 2019
SHEET NO.	7 OF 8



APPLICATION FOR ENCROACHMENT PERMIT

KYTC KEPT #: _____

SECTION 1: APPLICANT CONTACT INFORMATION

APPLICANT Estill County Water District	ADDRESS 76 Cedar Grove Rd	CITY Irvine		
EMAIL www.estillcountywater.com		STATE KY	ZIP 40336	
CONTACT NAME 1 Andrea Miller	EMAIL a.miller@estillcountywater.com	PHONE # 606.723.3795		
		CELL #		
CONTACT NAME 2 (if applicable) Alan Bowman, Project Engineer	EMAIL abowman@hkbell.com	PHONE # 859.278.5412		
		CELL #		

SECTION 2: PROPOSED WORK LOCATION

ADDRESS 76 Cedar Grove Rd	CITY Irvine	STATE Kentucky	ZIP 40336	
COUNTY Estill	ROUTE # KY 851	MILE POINT 6.97	LONGITUDE (X) 37.650587	LATITUDE (Y) -83.914110

ADDITIONAL LOCATION INFORMATION:

See attached Barnes/851 Mountain Zone Area Plan Sheet

FOR KYTC USE ONLY

PERMIT TYPE: Air Right Entrance Utilities Vegetation Removal Other: _____

ACCESS: Full Partial by Permit **LOCATION:** Left Right Crossing

SECTION 3: GENERAL DESCRIPTION OF WORK

Zone meter installation on existing waterline.

THE UNDERSIGNED APPLICANT(s), being duly authorized representative(s) or owner(s), DO AGREE TO ALL ORIGINAL UNEDITED TERMS AND CONDITIONS ON THE TC 99-1A, pages 1-4.

SIGNATURE

DATE

This is not a permit unless and until the applicant(s) receives an approved TC 99-1B from KYTC. This application shall become void if not approved by the cancellation date. The cancellation date shall be a minimum of one year from the date the applicant submits their application.



APPLICATION FOR ENCROACHMENT PERMIT

TERMS AND CONDITIONS

1. The permit, including this application and all related and accompanying documents and drawings making up the permit, remains in effect and is binding upon the Applicant/Permittee, its successors and assigns, as long as the encroachment(s) exists and also until the permittee is finally relieved by the Department of Highways from all its obligations.
2. Applicant shall meet all requirements of the Clean Water Act if the project will disturb one acre or more, the applicant shall obtain a KPDES KYR10 Permit from the Kentucky Division of Water. All disturbed areas shall meet the requirements of the Department of Highway's Standard Specifications, Sections 212 and 213, as amended.
3. **INDEMNITY:**
 - A. **PERFORMANCE BOND:** The permittee shall provide to the Department a performance bond according to the Permits Manual, Section PE-203 as a guarantee of conformance with the Department's Encroachment Permit requirements.
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18. If work authorized by the permit is within a highway construction project in the construction phase, it shall be the responsibility of the permittee to make personal contact with the Department's Engineer on the project in order to coordinate all permitted work with the Department's prime contractor on the project.
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21. Before You Dig: The contractor is instructed to call 1-800-752-6007 to reach KY 811, the One-Call system for information on the location of existing underground utilities. The call is to be placed a minimum of two (2) and no more than ten (10) business days prior to excavation. The contractor should be aware that the owners of underground facilities are not required to be members of the KY 811 One-Call Before U-Dig (BUD) service. The contractor must coordinate excavation with the utility owners, including those whom do not subscribe to KY 811. It may be necessary for the contractor to contact the County Clerk to determine what utility companies have facilities in the area.



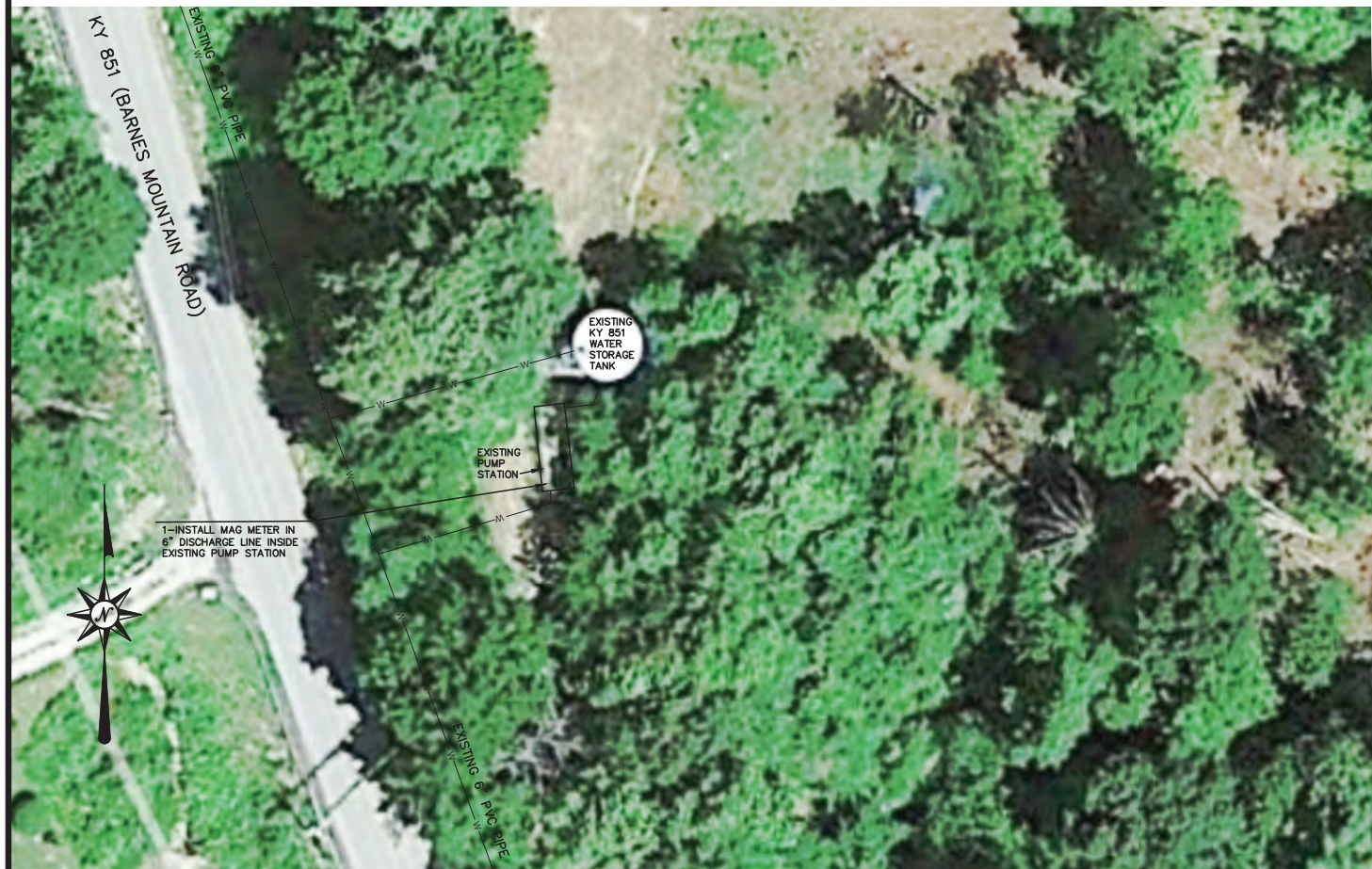
To Submit a Locate Request
24 Hours a Day, Seven Days a Week:
Call 811 or 800-752-6007



CLAY ISSACS ROAD SCALE: 1"=20'



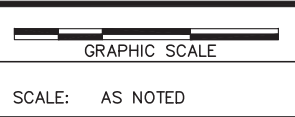
KY 89 SCALE: 1"=20'



KY 851 TANK SCALE: 1"=20'

STATE OF KENTUCKY
 ROBERT J. HARRIS
 24245
 LICENSED PROFESSIONAL ENGINEER
 6/5/2020

DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
CHECKED	RAB			
APPROVED	RAB			



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Lexington, KY (859) 278-5412
 Hopkinsville, KY (270) 886-5466
 Asheville, NC (828) 774-5499

PHASE 11 SYSTEM IMPROVEMENTS
 ESTILL COUNTY WATER DISTRICT #1
 IRVINE, KENTUCKY

ZONE METERS
 RED LICK ZONE,
 JACKSON ZONE AND
 BARNES/851 MOUNTAIN ZONE

DIVISION	-
CONTRACT NO.	371-19-01
DATE	NOVEMBER 2019
SHEET NO.	7 OF 8



APPLICATION FOR ENCROACHMENT PERMIT

KYTC KEPT #: _____

SECTION 1: APPLICANT CONTACT INFORMATION

APPLICANT Estill County Water District	ADDRESS 76 Cedar Grove Rd	CITY Irvine		
EMAIL www.estillcountywater.com		STATE KY	ZIP 40336	
CONTACT NAME 1 Andrea Miller	EMAIL a.miller@estillcountywater.com	PHONE # 606.723.3795		
		CELL #		
CONTACT NAME 2 (if applicable) Alan Bowman, Project Engineer	EMAIL abowman@hkbell.com	PHONE # 859.278.5412		
		CELL #		

SECTION 2: PROPOSED WORK LOCATION

ADDRESS 76 Cedar Grove Rd	CITY Irvine	STATE Kentucky	ZIP 40336	
COUNTY Estill	ROUTE # KY 851	MILE POINT 11.22	LONGITUDE (X) 37.680567	LATITUDE (Y) 83.969999

ADDITIONAL LOCATION INFORMATION:

See attached Beattyville Road Zone Area Plan Sheet

FOR KYTC USE ONLY

PERMIT TYPE: Air Right Entrance Utilities Vegetation Removal Other: _____

ACCESS: Full Partial by Permit **LOCATION:** Left Right Crossing

SECTION 3: GENERAL DESCRIPTION OF WORK

Zone meter installation on existing waterline.

THE UNDERSIGNED APPLICANT(s), being duly authorized representative(s) or owner(s), DO AGREE TO ALL ORIGINAL UNEDITED TERMS AND CONDITIONS ON THE TC 99-1A, pages 1-4.

Andrea B Miller
SIGNATURE

3/19/2020
DATE

This is not a permit unless and until the applicant(s) receives an approved TC 99-1B from KYTC. This application shall become void if not approved by the cancellation date. The cancellation date shall be a minimum of one year from the date the applicant submits their application.



APPLICATION FOR ENCROACHMENT PERMIT

TERMS AND CONDITIONS

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APPLICATION FOR ENCROACHMENT PERMIT

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13. Permittee, its successors and assigns, at all times from the date permitted work is commenced until such time as all permitted facilities or other encroachments are removed from the right-of-way and the right-of-way restored, **shall defend, protect, indemnify and save harmless** the Department from any and all liability claims and demands arising out of the work, encroachment, maintenance, or other undertaking by the permittee, its successors and assigns, related or undertaken pursuant to the granted permit, due to any claimed act or omission by the permittee, its servants, agents, employees, or contractors. This provision shall not inure to the benefit of any third party nor operate to enlarge any liability of the Department beyond that existing at common law or otherwise if this right to indemnity did not exist.
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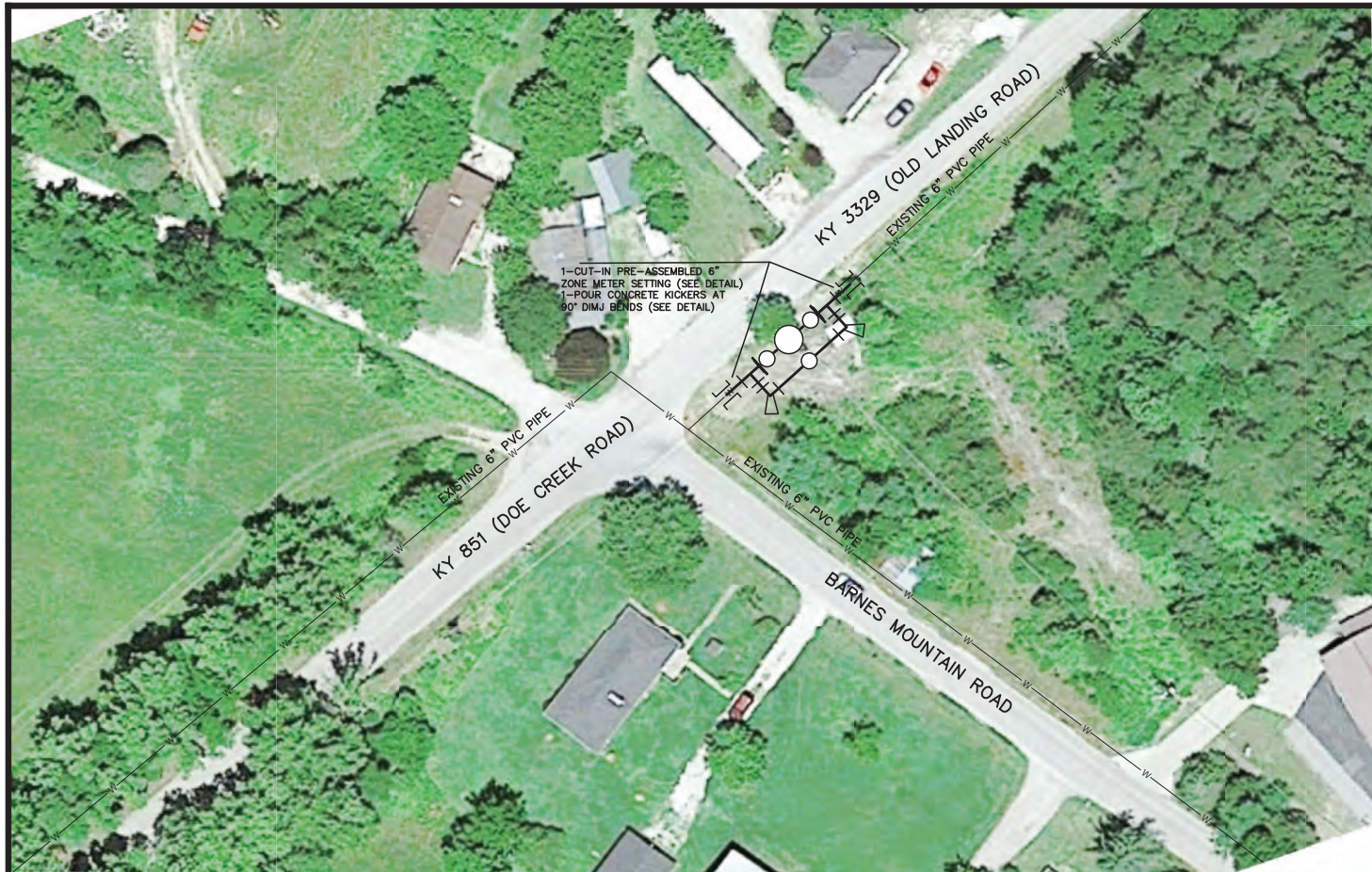


APPLICATION FOR ENCROACHMENT PERMIT

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KY 851/BARNES MOUNTAIN ROAD SCALE: 1"=20'



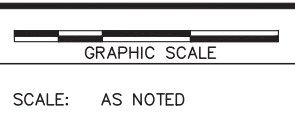
KY 851 SCALE: 1"=20'



KY 1182 SCALE: 1"=20'



DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
CHECKED	RAB			
APPROVED	RAB			



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PHASE 11 SYSTEM IMPROVEMENTS
 ESTILL COUNTY WATER DISTRICT #1
 IRVINE, KENTUCKY

ZONE METERS
 BEATTYVILLE ROAD ZONE
 AND
 COB HILL ZONE

DIVISION	-
CONTRACT NO.	371-19-01
DATE	NOVEMBER 2019
SHEET NO.	8 OF 8



APPLICATION FOR ENCROACHMENT PERMIT

KYTC KEPT #: _____

SECTION 1: APPLICANT CONTACT INFORMATION

APPLICANT Estill County Water District	ADDRESS 76 Cedar Grove Rd	CITY Irvine	STATE KY	ZIP 40336
EMAIL www.estillcountywater.com		PHONE # 606.723.3795		
CONTACT NAME 1 Andrea Miller	EMAIL a.miller@estillcountywater.com	CELL #		
CONTACT NAME 2 (if applicable) Alan Bowman, Project Engineer	EMAIL abowman@hkbell.com	PHONE # 859.278.5412		
		CELL #		

SECTION 2: PROPOSED WORK LOCATION

ADDRESS 76 Cedar Grove Rd	CITY Irvine	STATE Kentucky	ZIP 40336	
COUNTY Estill	ROUTE # KY 3329	MILE POINT 0.01	LONGITUDE (X) 37.672728	LATITUDE (Y) -83.932766

ADDITIONAL LOCATION INFORMATION:

See attached Beatyville Road Zone Area Plan Sheet

FOR KYTC USE ONLY

PERMIT TYPE: Air Right Entrance Utilities Vegetation Removal Other: _____

ACCESS: Full Partial by Permit **LOCATION:** Left Right Crossing

SECTION 3: GENERAL DESCRIPTION OF WORK

Zone meter installation on existing waterline.

THE UNDERSIGNED APPLICANT(s), being duly authorized representative(s) or owner(s), DO AGREE TO ALL ORIGINAL UNEDITED TERMS AND CONDITIONS ON THE TC 99-1A, pages 1-4.



SIGNATURE



DATE

This is not a permit unless and until the applicant(s) receives an approved TC 99-1B from KYTC. This application shall become void if not approved by the cancellation date. The cancellation date shall be a minimum of one year from the date the applicant submits their application.



APPLICATION FOR ENCROACHMENT PERMIT

TERMS AND CONDITIONS

1. The permit, including this application and all related and accompanying documents and drawings making up the permit, remains in effect and is binding upon the Applicant/Permittee, its successors and assigns, as long as the encroachment(s) exists and also until the permittee is finally relieved by the Department of Highways from all its obligations.
2. Applicant shall meet all requirements of the Clean Water Act if the project will disturb one acre or more, the applicant shall obtain a KPDES KYR10 Permit from the Kentucky Division of Water. All disturbed areas shall meet the requirements of the Department of Highway's Standard Specifications, Sections 212 and 213, as amended.
3. **INDEMNITY:**
 - A. **PERFORMANCE BOND:** The permittee shall provide to the Department a performance bond according to the Permits Manual, Section PE-203 as a guarantee of conformance with the Department's Encroachment Permit requirements.
 - B. **PAYMENT BOND:** At the discretion of the department, a payment bond shall be required of the permittee to ensure payment of liquidated damages assessed to the permittee.
 - C. **LIABILITY INSURANCE:** Liability insurance shall be required of the permittee (in an amount approved by the department) to cover all liabilities associated with the encroachment.
 - D. It shall be the responsibility of the permittee, its successors and assigns, to maintain all indemnities in full force and effect until the permittee is authorized to release the indemnity by the Department.
4. A copy of this application and all related documents making up the approved permit shall be given to the applicant and shall be made readily available for review at the work site at all times.
5. Perpetual maintenance of the encroachment is the responsibility of the permittee, its successors and assigns, with the approval of the Department as required, unless otherwise stated.
6. Permittee, its successors and assigns, shall comply with and agree to be bound by the requirements and terms of (a) this application and all related documents making up the approved permit, (b) by the Department's Permits Manual, and (c) by the Manual on Uniform Traffic Control Devices, both manuals as revised to and in effect on the date of issuance of the permit, all of which documents are made a part thereof by this reference. Compliance by the permittee, its successors and assigns, with subsequent revisions to applicable provisions of either manual or other policy of the Department may be made a condition of allowing the encroachment to persist under the permit.
7. Permittee agrees that this and any encroachment may be ordered removed by the Department at any time, and for any reason, upon thirty days written notice to the last known address of the applicant or to the address at the location of the encroachment. The permittee agrees that the cost of removing and of restoring the associated right-of-way is the responsibility of the permittee, its successors and assigns.
8. Permittee, its successors and assigns, agree that if the Department determines that motor vehicular safety deficiencies develop as a result of the installation or use of the encroachment, the permittee, its successors and assigns, shall provide and bear the expenses to adjust, relocate, or reconstruct the facilities, add signs, auxiliary lanes, or other corrective measures reasonably deemed necessary by the Department within a reasonable time after receipt of a written notice of such deficiency. The period within which such adjustments, relocations, additions, modifications, or other corrective measures must be completed will be specified in the notice.
9. Where traffic signals are required as a condition of granting the requested permit or are thereafter required to correct motor vehicular safety deficiencies, as determined by the Department, the costs for signal equipment and installation(s) shall be borne by the permittee, its successors and assigns and the Department in its reasonable discretion and only in accordance with the Department's current policy set forth in the Traffic Operations Manual and Permits Manual. Any modifications to the permittee's entrance necessary to accommodate signalization (including necessary easement(s) on private property) shall be the responsibility of the permittee, its successors and assigns, at no expense to the Department.



APPLICATION FOR ENCROACHMENT PERMIT

10. The requested encroachment shall not infringe on the frontage rights of an abutting owner without their written consent as hereinafter described. Each abutting owner shall express their consent, which shall be binding on their successors and assigns, by the submission of a notarized statement as follows, "I (we), _____, hereby consent to the granting of the permit requested by the applicant along Route _____, which permit does affect frontage rights along my (our) adjacent real property." By signature(s) _____, subscribed and sworn by _____, on this date _____.
11. The permit, if approved, is subject to the agreement that it shall not interfere with any similar rights or permit(s) previously granted to any other party, except as otherwise provided by law.
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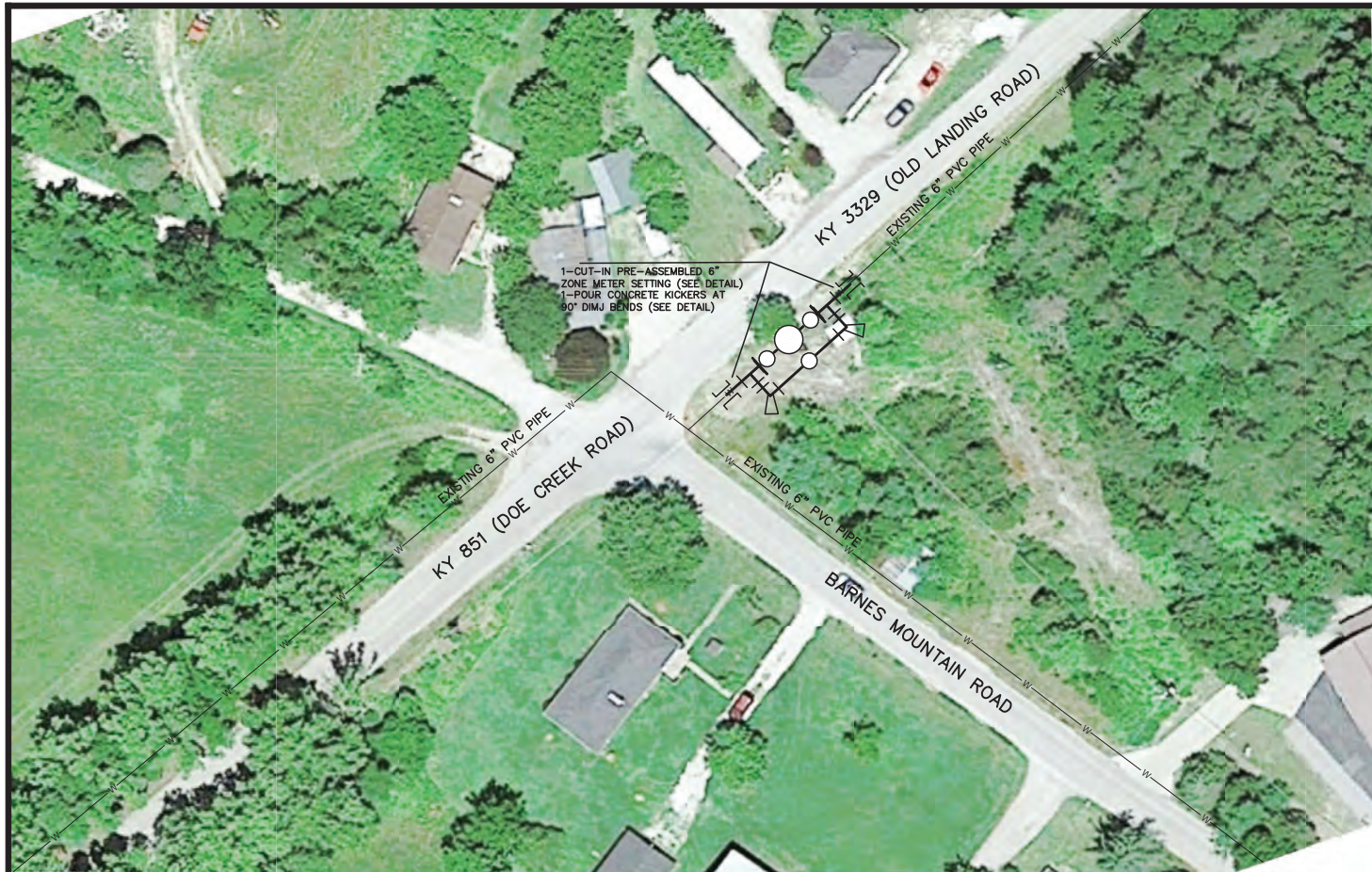


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KY 851/BARNES MOUNTAIN ROAD SCALE: 1"=20'



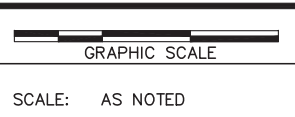
KY 851 SCALE: 1"=20'



KY 1182 SCALE: 1"=20'



DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
CHECKED	RAB			
APPROVED	RAB			



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PHASE 11 SYSTEM IMPROVEMENTS
 ESTILL COUNTY WATER DISTRICT #1
 IRVINE, KENTUCKY

ZONE METERS
 BEATTYVILLE ROAD ZONE
 AND
 COB HILL ZONE

DIVISION	-
CONTRACT NO.	371-19-01
DATE	NOVEMBER 2019
SHEET NO.	8 OF 8



APPLICATION FOR ENCROACHMENT PERMIT

KYTC KEPT #: _____

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APPLICANT Estill County Water District	ADDRESS 76 Cedar Grove Rd	CITY Irvine		
EMAIL www.estillcountywater.com		STATE KY	ZIP 40336	
CONTACT NAME 1 Andrea Miller	EMAIL a.miller@estillcountywater.com	PHONE # 606.723.3795	CELL #	
CONTACT NAME 2 (if applicable) Alan Bowman, Project Engineer	EMAIL abowman@hkbell.com	PHONE # 859.278.5412	CELL #	

SECTION 2: PROPOSED WORK LOCATION

ADDRESS 76 Cedar Grove Rd	CITY Irvine	STATE Kentucky	ZIP 40336	
COUNTY Estill	ROUTE # KY 1182	MILE POINT 0.34	LONGITUDE (X) 37.690727	LATITUDE (Y) -83.853463

ADDITIONAL LOCATION INFORMATION:
 See attached Cob Hill Zone Area Plan Sheet

FOR KYTC USE ONLY

PERMIT TYPE: Air Right Entrance Utilities Vegetation Removal Other: _____

ACCESS: Full Partial by Permit **LOCATION:** Left Right Crossing

SECTION 3: GENERAL DESCRIPTION OF WORK

Zone meter installation on existing waterline.

THE UNDERSIGNED APPLICANT(s), being duly authorized representative(s) or owner(s), DO AGREE TO ALL ORIGINAL UNEDITED TERMS AND CONDITIONS ON THE TC 99-1A, pages 1-4.

Andrea B Miller
 SIGNATURE

3/19/2020
 DATE

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APPLICATION FOR ENCROACHMENT PERMIT

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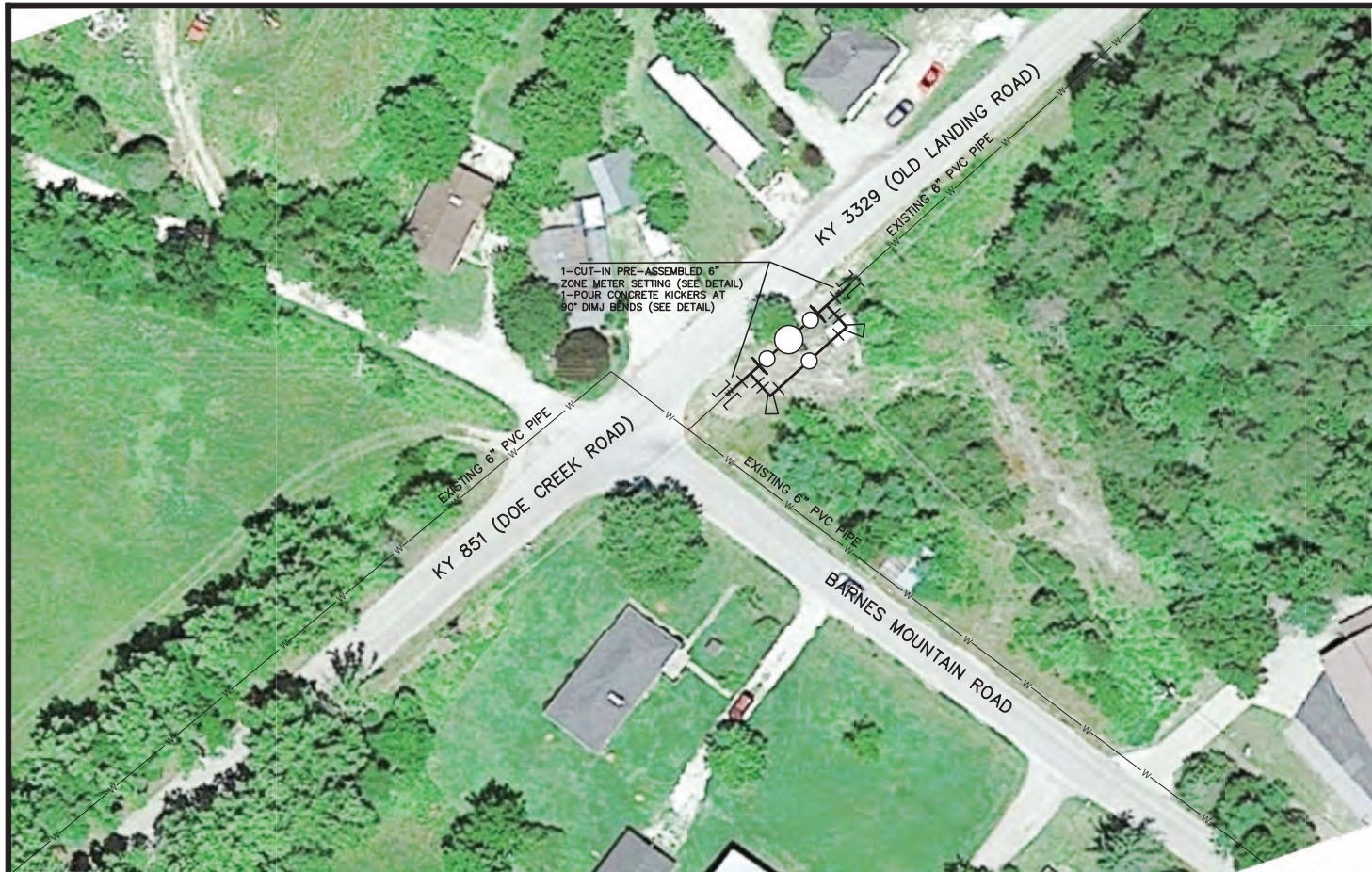


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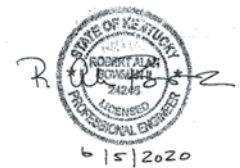
KY 851/BARNES MOUNTAIN ROAD SCALE: 1"=20'



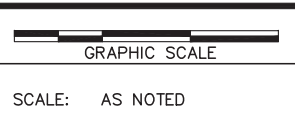
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PHASE 11 SYSTEM IMPROVEMENTS
 ESTILL COUNTY WATER DISTRICT #1
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ZONE METERS
 BEATTYVILLE ROAD ZONE
 AND
 COB HILL ZONE

DIVISION	-
CONTRACT NO.	371-19-01
DATE	NOVEMBER 2019
SHEET NO.	8 OF 8



KENTUCKY TRANSPORTATION CABINET
 Department of Highways
 PERMITS BRANCH

TC 99-1A
 Rev. 09/2019
 Page 1 of 4

APPLICATION FOR ENCROACHMENT PERMIT

KYTC KEPT #: _____

SECTION 1: APPLICANT CONTACT INFORMATION

APPLICANT Estill County Water District	ADDRESS 76 Cedar Grove Rd	CITY Irvine
EMAIL www.estillcountywater.com		STATE KY
		ZIP 40336
CONTACT NAME 1 Audrea Miller	EMAIL a.miller@estillcountywater.com	PHONE # 606.723.3795
		CELL #
CONTACT NAME 2 (if applicable) Alan Bowman, Project Engineer	EMAIL abowman@hkbell.com	PHONE # 859.278.5412
		CELL #

SECTION 2: PROPOSED WORK LOCATION

ADDRESS 76 Cedar Grove Rd	CITY Irvine	STATE Kentucky	ZIP 40336
COUNTY Estill	ROUTE # KY 1886	MILE POINT 4.97	LONGITUDE (X) 37.797185
			LATITUDE (Y) -84.038725

ADDITIONAL LOCATION INFORMATION:
 See attached KY 89/KY 1886 Area Plan Sheet

FOR KYTC USE ONLY

PERMIT TYPE: Air Right Entrance Utilities Vegetation Removal Other: _____

ACCESS: Full Partial by Permit **LOCATION:** Left Right Crossing

SECTION 3: GENERAL DESCRIPTION OF WORK

Zone meter installation on existing waterline.

THE UNDERSIGNED APPLICANT(s), being duly authorized representative(s) or owner(s), DO AGREE TO ALL ORIGINAL UNEDITED TERMS AND CONDITIONS ON THE TC 99-1A, pages 1-4.

Audrea B Miller
 SIGNATURE

July 8, 2020
 DATE

This is not a permit unless and until the applicant(s) receives an approved TC 99-1B from KYTC. This application shall become void if not approved by the cancellation date. The cancellation date shall be a minimum of one year from the date the applicant submits their application.



APPLICATION FOR ENCROACHMENT PERMIT

TERMS AND CONDITIONS

1. The permit, including this application and all related and accompanying documents and drawings making up the permit, remains in effect and is binding upon the Applicant/Permittee, its successors and assigns, as long as the encroachment(s) exists and also until the permittee is finally relieved by the Department of Highways from all its obligations.
2. Applicant shall meet all requirements of the Clean Water Act if the project will disturb one acre or more, the applicant shall obtain a KPDES KYR10 Permit from the Kentucky Division of Water. All disturbed areas shall meet the requirements of the Department of Highway's Standard Specifications, Sections 212 and 213, as amended.
3. **INDEMNITY:**
 - A. **PERFORMANCE BOND:** The permittee shall provide to the Department a performance bond according to the Permits Manual, Section PE-203 as a guarantee of conformance with the Department's Encroachment Permit requirements.
 - B. **PAYMENT BOND:** At the discretion of the department, a payment bond shall be required of the permittee to ensure payment of liquidated damages assessed to the permittee.
 - C. **LIABILITY INSURANCE:** Liability insurance shall be required of the permittee (in an amount approved by the department) to cover all liabilities associated with the encroachment.
 - D. It shall be the responsibility of the permittee, its successors and assigns, to maintain all indemnities in full force and effect until the permittee is authorized to release the indemnity by the Department.
4. A copy of this application and all related documents making up the approved permit shall be given to the applicant and shall be made readily available for review at the work site at all times.
5. Perpetual maintenance of the encroachment is the responsibility of the permittee, its successors and assigns, with the approval of the Department as required, unless otherwise stated.
6. Permittee, its successors and assigns, shall comply with and agree to be bound by the requirements and terms of (a) this application and all related documents making up the approved permit, (b) by the Department's Permits Manual, and (c) by the Manual on Uniform Traffic Control Devices, both manuals as revised to and in effect on the date of issuance of the permit, all of which documents are made a part thereof by this reference. Compliance by the permittee, its successors and assigns, with subsequent revisions to applicable provisions of either manual or other policy of the Department may be made a condition of allowing the encroachment to persist under the permit.
7. Permittee agrees that this and any encroachment may be ordered removed by the Department at any time, and for any reason, upon thirty days written notice to the last known address of the applicant or to the address at the location of the encroachment. The permittee agrees that the cost of removing and of restoring the associated right-of-way is the responsibility of the permittee, its successors and assigns.
8. Permittee, its successors and assigns, agree that if the Department determines that motor vehicular safety deficiencies develop as a result of the installation or use of the encroachment, the permittee, its successors and assigns, shall provide and bear the expenses to adjust, relocate, or reconstruct the facilities, add signs, auxiliary lanes, or other corrective measures reasonably deemed necessary by the Department within a reasonable time after receipt of a written notice of such deficiency. The period within which such adjustments, relocations, additions, modifications, or other corrective measures must be completed will be specified in the notice.
9. Where traffic signals are required as a condition of granting the requested permit or are thereafter required to correct motor vehicular safety deficiencies, as determined by the Department, the costs for signal equipment and installation(s) shall be borne by the permittee, its successors and assigns and the Department in its reasonable discretion and only in accordance with the Department's current policy set forth in the Traffic Operations Manual and Permits Manual. Any modifications to the permittee's entrance necessary to accommodate signalization (including necessary easement(s) on private property) shall be the responsibility of the permittee, its successors and assigns, at no expense to the Department.



APPLICATION FOR ENCROACHMENT PERMIT

10. The requested encroachment shall not infringe on the frontage rights of an abutting owner without their written consent as hereinafter described. Each abutting owner shall express their consent, which shall be binding on their successors and assigns, by the submission of a notarized statement as follows, "I (we), _____, hereby consent to the granting of the permit requested by the applicant along Route _____, which permit does affect frontage rights along my (our) adjacent real property." By signature(s) _____, subscribed and sworn by _____, on this date _____.
11. The permit, if approved, is subject to the agreement that it shall not interfere with any similar rights or permit(s) previously granted to any other party, except as otherwise provided by law.
12. Permittee shall include documentation which describes the facilities to be constructed. Permittee, its successors and assigns, agree as a condition of the granting of the permit to construct and maintain any and all permitted facilities or other encroachments in strict accordance with the submitted and approved permit documentation and the policies and procedures of the Department. Permittee, its successors and assigns, shall not use facilities authorized herein in any manner contrary to that prescribed by the approved permit. Only normal usage as contemplated by the parties and by this application and routine maintenance are authorized by the permit.
13. Permittee, its successors and assigns, at all times from the date permitted work is commenced until such time as all permitted facilities or other encroachments are removed from the right-of-way and the right-of-way restored, **shall defend, protect, indemnify and save harmless** the Department from any and all liability claims and demands arising out of the work, encroachment, maintenance, or other undertaking by the permittee, its successors and assigns, related or undertaken pursuant to the granted permit, due to any claimed act or omission by the permittee, its servants, agents, employees, or contractors. This provision shall not inure to the benefit of any third party nor operate to enlarge any liability of the Department beyond that existing at common law or otherwise if this right to indemnity did not exist.
14. Upon a violation of any provision of the permit, or otherwise in its reasonable discretion, the Department may require additional action by the permittee, its successors and assigns, up to and including the removal of the encroachment and restoration of the right-of-way. In the event additional actions required by the Department under the permit are not undertaken as ordered and within a reasonable time, the Department may in its discretion cause those or other additional corrective actions to be undertaken and the Department shall recover the reasonable costs of those corrective actions from the permittee, its successors and assigns.
15. Permittee, its successors and assigns, shall use the encroachment premises in compliance with all requirements of federal law and regulation, including those imposed pursuant to Title VI of the Civil Right Act of 1964 (42 U.S.C. § 2000d et seq.) and the related regulations of the U.S. Department of Transportation in Title 49 C.F.R. Part 21, all as amended.
16. Permittee, its successors and assigns, agree that if the Department determines it is necessary for the facilities or other encroachment authorized by the permit to be removed, relocated or reconstructed in connection with the reconstruction, relocation or improvement of a highway, the Department may revoke permission for the encroachment to remain under the permit and may order its removal, relocation or reconstruction by the permittee, its successors and assigns, at the expense of the permittee, except where the Department is required by law to pay any or all of those costs.



APPLICATION FOR ENCROACHMENT PERMIT

17. Permittee agrees that the authorized permit is personal to the permittee and shall remain in effect until such time as (a) the permittee's rights to the adjoining real property to have benefitted from the requested encroachment have been relinquished, (b) until all permit obligations have been assumed by appropriate successors and assigns, and (c) unless and until a written release from permit obligations has been granted by the Department. The permit and its requirements shall also bind the real property to have benefitted from the requested encroachment to the extent permitted by law. The permit and the related encroachment become the responsibility of the successors and assigns of the permittee and the successors and assigns of each property owner benefitting from the encroachment, or the encroachment may not otherwise permissibly continue to be maintained on the right-of-way. (Does not apply to utility encroachments serving the general public.)
18. If work authorized by the permit is within a highway construction project in the construction phase, it shall be the responsibility of the permittee to make personal contact with the Department's Engineer on the project in order to coordinate all permitted work with the Department's prime contractor on the project.
19. This permit is not intended to, nor shall it, affect, alter or alleviate any requirement imposed upon the permittee, its successors and assigns, by any other agency.
20. Permittee, its successors and assigns, agree to contain and maintain all dirt, mud, and other debris emanating from the encroachment away from the surrounding right-of-way and the travel way of the highway hereafter and at all times that its obligations under the permit remain in effect.
21. Before You Dig: The contractor is instructed to call 1-800-752-6007 to reach KY 811, the One-Call system for information on the location of existing underground utilities. The call is to be placed a minimum of two (2) and no more than ten (10) business days prior to excavation. The contractor should be aware that the owners of underground facilities are not required to be members of the KY 811 One-Call Before U-Dig (BUD) service. The contractor must coordinate excavation with the utility owners, including those whom do not subscribe to KY 811. It may be necessary for the contractor to contact the County Clerk to determine what utility companies have facilities in the area.



Know what's below. Call before you dig.

To Submit a Locate Request
24 Hours a Day, Seven Days a Week:
Call 811 or 800-752-6007

SHEET NO.	4 OF 8
DATE	NOVEMBER 2019
CONTRACT NO.	371-19-01
DIVISION	-

ZONE METERS
 DRY BRANCH ZONE,
 AND KY 89 ZONE

PHASE 11 SYSTEM IMPROVEMENTS
 ESTILL COUNTY WATER DISTRICT #1
 IRVINE, KENTUCKY

Lexington, KY (609) 278-5412
 Hopkinsville, KY (270) 866-5466
 Asheville, NC (828) 774-5499



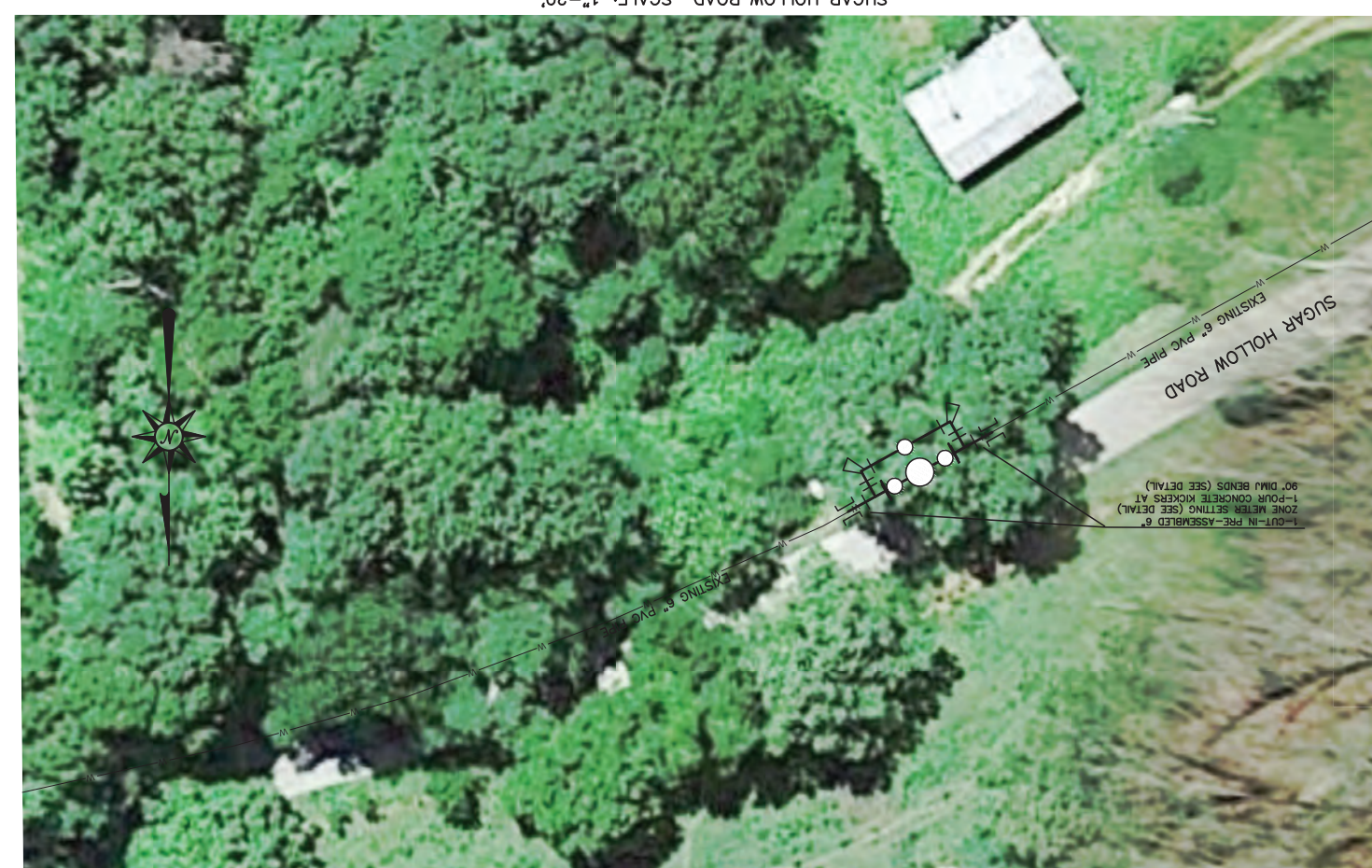
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SCALE: AS NOTED
 GRAPHIC SCALE

DESIGNER	RAB	DATE	BY	REVISION
CHECKED	RAB			
DRAWN	DMB			
APPROVED	RAB			



KY 89 SCALE: 1"=20'



KY 89 / KY 1886 SCALE: 1"=20'

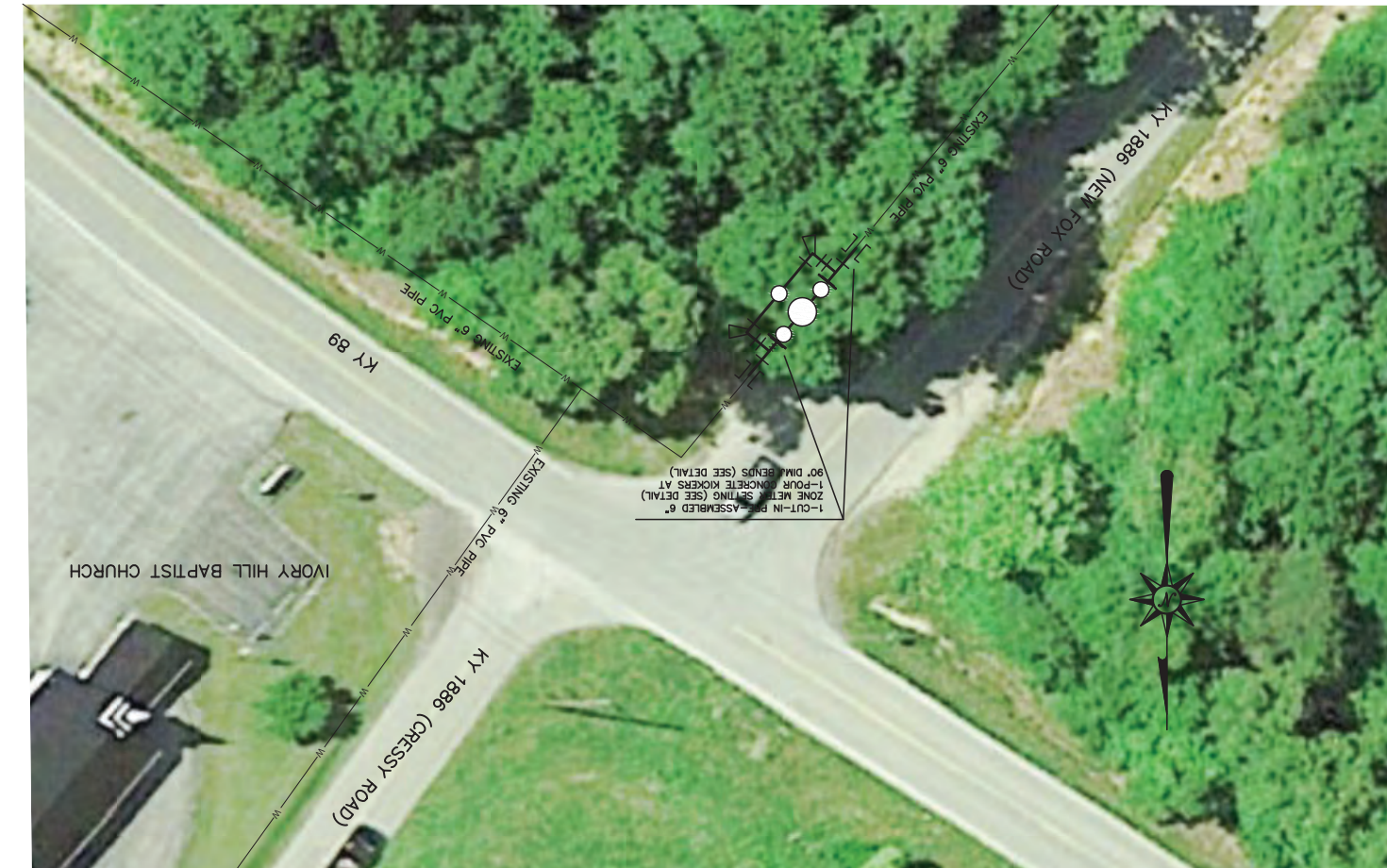


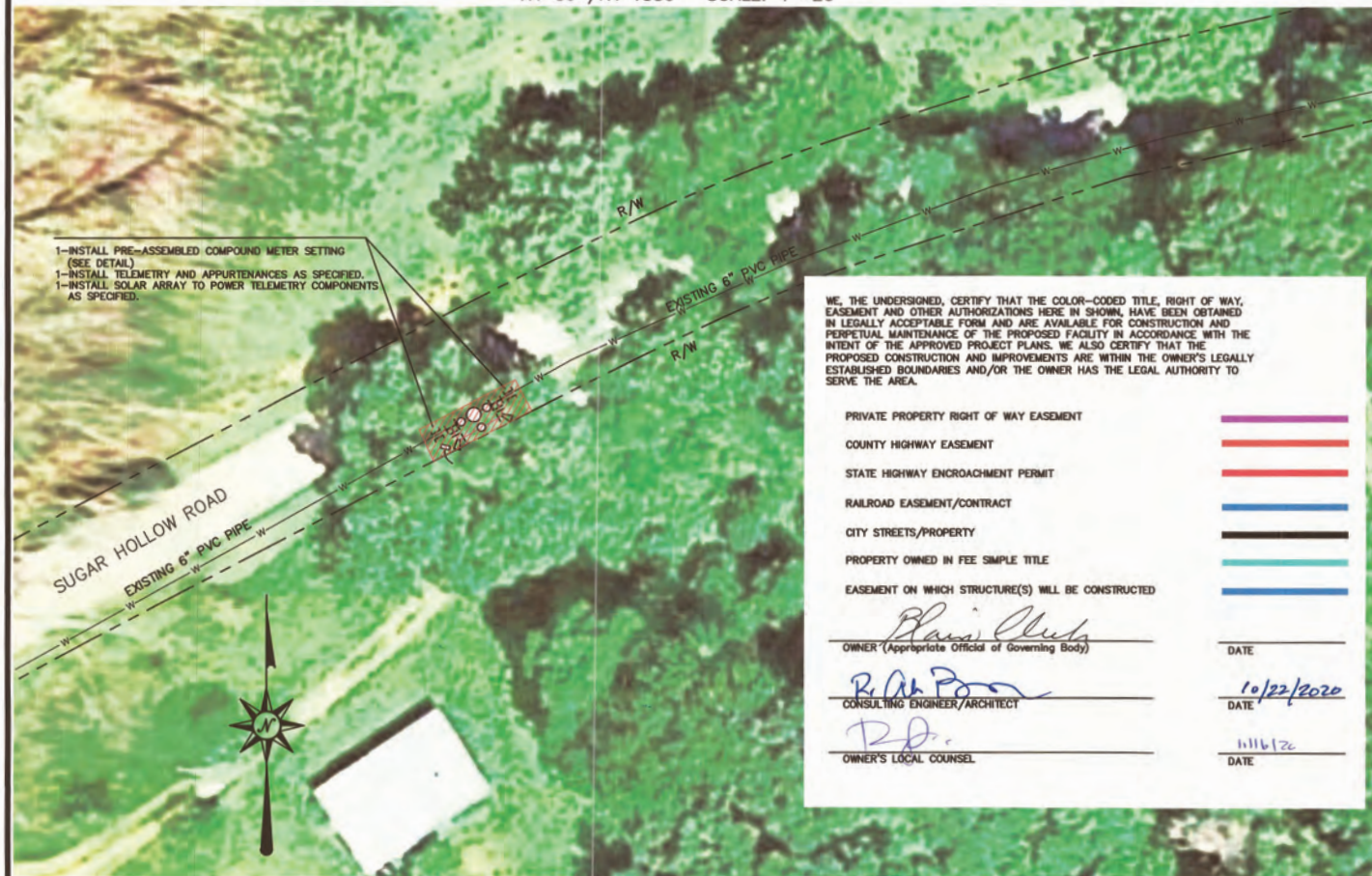
EXHIBIT 19



KY 89 / KY 1886 SCALE: 1"=20'



KY 89 (IVORY HILL PUMP STATION) SCALE: 1"=20'



SUGAR HOLLOW ROAD SCALE: 1"=20'



KY 89 / KY 82 SCALE: 1"=20'

DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
CHECKED	RAB			
APPROVED	RAB			

GRAPHIC SCALE	
SCALE:	AS NOTED

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Hopkinsville, KY (270) 886-5466
Asheville, NC (828) 774-5499

PHASE 11 SYSTEM IMPROVEMENTS
ZONE METER & RIVER CROSSING INSTALLATION
ESTILL COUNTY WATER DISTRICT #1
IRVINE, KENTUCKY

RD ROW SITE PLAN
ZONE METERS
DRY BRANCH ZONE,
AND KY 89 ZONE

DIVISION	-
CONTRACT NO.	371-19-01
DATE	NOVEMBER 2019
SHEET NO.	4 OF 8





KY 1457/OPOSSUM RUN ROAD SCALE: 1"=20'



KY 1457 (SAND HILL PUMP STATION) SCALE: 1"=20'



KY 52/KY1353 SCALE: 1"=20'

WE, THE UNDERSIGNED, CERTIFY THAT THE COLOR-CODED TITLE, RIGHT OF WAY, EASEMENT AND OTHER AUTHORIZATIONS HEREIN SHOWN, HAVE BEEN OBTAINED IN LEGALLY ACCEPTABLE FORM AND ARE AVAILABLE FOR CONSTRUCTION AND PERPETUAL MAINTENANCE OF THE PROPOSED FACILITY IN ACCORDANCE WITH THE INTENT OF THE APPROVED PROJECT PLANS. WE ALSO CERTIFY THAT THE PROPOSED CONSTRUCTION AND IMPROVEMENTS ARE WITHIN THE OWNER'S LEGALLY ESTABLISHED BOUNDARIES AND/OR THE OWNER HAS THE LEGAL AUTHORITY TO SERVE THE AREA.

PRIVATE PROPERTY RIGHT OF WAY EASEMENT	
COUNTY HIGHWAY EASEMENT	
STATE HIGHWAY ENCROACHMENT PERMIT	
RAILROAD EASEMENT/CONTRACT	
CITY STREETS/PROPERTY	
PROPERTY OWNED IN FEE SIMPLE TITLE	
EASEMENT ON WHICH STRUCTURE(S) WILL BE CONSTRUCTED	
 OWNER (Appropriate Official of Governing Body)	DATE
 CONSULTING ENGINEER/ARCHITECT	10/22/2020
 OWNER'S LOCAL COUNSEL	11/16/20



DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
CHECKED	RAB			
APPROVED	RAB			

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GRAPHIC SCALE
SCALE: AS NOTED

PHASE 11 SYSTEM IMPROVEMENTS
ZONE METER & RIVER CROSSING INSTALLATION
ESTILL COUNTY WATER DISTRICT #1
IRVINE, KENTUCKY

RD ROW SITE PLAN
ZONE METERS
SAND HILL ZONE AND KY 52 ZONE

DIVISION	-
CONTRACT NO.	371-19-01
DATE	NOVEMBER 2019
SHEET NO.	5 OF 8



SWEET LICK ROAD SCALE: 1"=20'



KY 89 (NEW RIVER PUMP STATION) SCALE: 1"=20'



KY 594 (PEA RIDGE PUMP STATION) SCALE: 1"=20'



KY 499 SCALE: 1"=20'

WE, THE UNDERSIGNED, CERTIFY THAT THE COLOR-CODED TITLE, RIGHT OF WAY, EASEMENT AND OTHER AUTHORIZATIONS HERE IN SHOW, HAVE BEEN OBTAINED IN LEGALLY ACCEPTABLE FORM AND ARE AVAILABLE FOR CONSTRUCTION AND PERPETUAL MAINTENANCE OF THE PROPOSED FACILITY IN ACCORDANCE WITH THE INTENT OF THE APPROVED PROJECT PLANS. WE ALSO CERTIFY THAT THE PROPOSED CONSTRUCTION AND IMPROVEMENTS ARE WITHIN THE OWNER'S LEGALLY ESTABLISHED BOUNDARIES AND/OR THE OWNER HAS THE LEGAL AUTHORITY TO SERVE THE AREA.

PRIVATE PROPERTY RIGHT OF WAY EASEMENT	
COUNTY HIGHWAY EASEMENT	
STATE HIGHWAY ENCROACHMENT PERMIT	
RAILROAD EASEMENT/CONTRACT	
CITY STREETS/PROPERTY	
PROPERTY OWNED IN FEE SIMPLE TITLE	
EASEMENT ON WHICH STRUCTURE(S) WILL BE CONSTRUCTED	

Rain Clark
 OWNER (Appropriate Official of Governing Body) _____ DATE _____
R. DePue
 CONSULTING ENGINEER/ARCHITECT _____ DATE 10/24/2020
R. DePue
 OWNER'S LOCAL COUNSEL _____ DATE 11/20/2020



ESTILL COUNTY WATER DISTRICT #1, 10151 SWEET LICK ROAD, SWEET LICK, KY 40381

DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
CHECKED	RAB			
APPROVED	RAB			

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Lexington, KY (859) 278-5412
Hopkinsville, KY (270) 886-5466
Asheville, NC (828) 774-5499

GRAPHIC SCALE
SCALE: AS NOTED

PHASE 11 SYSTEM IMPROVEMENTS
ZONE METER & RIVER CROSSING INSTALLATION
ESTILL COUNTY WATER DISTRICT #1
IRVINE, KENTUCKY

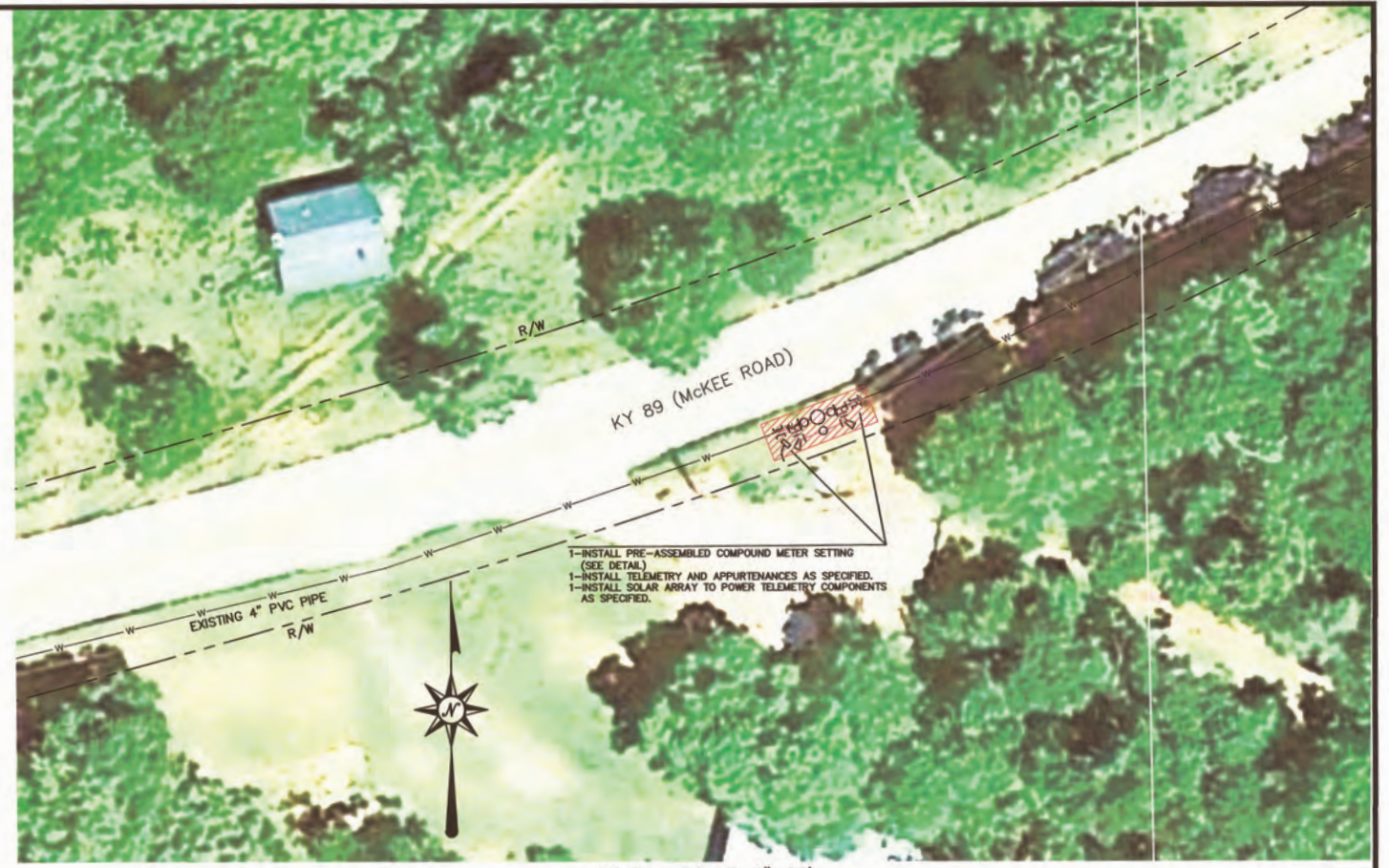
RD ROW SITE PLAN
ZONE METERS
SWEET LICK ROAD, SOUTH IRVINE ZONE,
WISEMANTOWN ZONE AND CROOKED CREEK ZONE:

DIVISION	-
CONTRACT NO.	371-19-01
DATE	NOVEMBER 2019
SHEET NO.	6 OF 8



1-INSTALL PRE-ASSEMBLED COMPOUND METER SETTING (SEE DETAIL)
 1-INSTALL TELEMETRY AND APPURTENANCES AS SPECIFIED.
 1-INSTALL SOLAR ARRAY TO POWER TELEMETRY COMPONENTS AS SPECIFIED.

CLAY ISSACS ROAD SCALE: 1"=20'



1-INSTALL PRE-ASSEMBLED COMPOUND METER SETTING (SEE DETAIL)
 1-INSTALL TELEMETRY AND APPURTENANCES AS SPECIFIED.
 1-INSTALL SOLAR ARRAY TO POWER TELEMETRY COMPONENTS AS SPECIFIED.

KY 89 SCALE: 1"=20'



1-INSTALL INSERTION TYPE MAG METER ON DISCHARGE LINE TO EXISTING PUMP STATION VIA 2" X 2" TAP, INCLUDING 3/4" DIAMETER METER JAR AND L.S.D.
 1-UPGRADE TELEMETRY IN EXISTING PUMP STATION TO INCLUDE NEW MAG METER DEVICE.
 1-INSTALL NECESSARY WIRING AND CONDUIT FROM MAG METER TO TELEMETRY CONTROLS INSIDE EXISTING PUMP STATION, INCLUDING CORING OF EXISTING PUMP STATION.

KY 851 (BARNES MOUNTAIN PUMP STATION) SCALE: 1"=20'

WE, THE UNDERSIGNED, CERTIFY THAT THE COLOR-CODED TITLE, RIGHT OF WAY, EASEMENT AND OTHER AUTHORIZATIONS HERE IN SHOWN, HAVE BEEN OBTAINED IN LEGALLY ACCEPTABLE FORM AND ARE AVAILABLE FOR CONSTRUCTION AND PERPETUAL MAINTENANCE OF THE PROPOSED FACILITY IN ACCORDANCE WITH THE INTENT OF THE APPROVED PROJECT PLANS. WE ALSO CERTIFY THAT THE PROPOSED CONSTRUCTION AND IMPROVEMENTS ARE WITHIN THE OWNER'S LEGALLY ESTABLISHED BOUNDARIES AND/OR THE OWNER HAS THE LEGAL AUTHORITY TO SERVE THE AREA.

PRIVATE PROPERTY RIGHT OF WAY EASEMENT	
COUNTY HIGHWAY EASEMENT	
STATE HIGHWAY ENCROACHMENT PERMIT	
RAILROAD EASEMENT/CONTRACT	
CITY STREETS/PROPERTY	
PROPERTY OWNED IN FEE SIMPLE TITLE	
EASEMENT ON WHICH STRUCTURE(S) WILL BE CONSTRUCTED	
 OWNER (Appropriate Official of Governing Body)	DATE
 CONSULTING ENGINEER/ARCHITECT	10/22/2020
	DATE
OWNER'S LOCAL COUNSEL	11/6/20



DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
CHECKED	RAB			
APPROVED	RAB			

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 Hopkinsville, KY (270) 886-5466
 Asheville, NC (828) 774-5499

GRAPHIC SCALE

SCALE: AS NOTED

PHASE 11 SYSTEM IMPROVEMENTS
 ZONE METER & RIVER CROSSING INSTALLATION
 ESTILL COUNTY WATER DISTRICT #1
 IRVINE, KENTUCKY

RD ROW SITE PLAN
 ZONE METERS
 RED LICK ZONE, JACKSON ZONE AND
 BARNES/851 MOUNTAIN ZONE

DIVISION -
 CONTRACT NO. 371-19-01
 DATE NOVEMBER 2019
 SHEET NO. 7 OF 8

DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
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APPROVED	RAB			



KY 851/BARNES MOUNTAIN ROAD SCALE: 1"=20'



KY 1182 (COB HILL PUMP STATION) SCALE: 1"=20'



KY 851 (SOUTH IRVINE PUMP STATION) SCALE: 1"=20'

WE, THE UNDERSIGNED, CERTIFY THAT THE COLOR-CODED TITLE, RIGHT OF WAY, EASEMENT AND OTHER AUTHORIZATIONS HEREIN SHOWN, HAVE BEEN OBTAINED IN LEGALLY ACCEPTABLE FORM AND ARE AVAILABLE FOR CONSTRUCTION AND PERPETUAL MAINTENANCE OF THE PROPOSED FACILITY IN ACCORDANCE WITH THE INTENT OF THE APPROVED PROJECT PLANS. WE ALSO CERTIFY THAT THE PROPOSED CONSTRUCTION AND IMPROVEMENTS ARE WITHIN THE OWNER'S LEGALLY ESTABLISHED BOUNDARIES AND/OR THE OWNER HAS THE LEGAL AUTHORITY TO SERVE THE AREA.

- PRIVATE PROPERTY RIGHT OF WAY EASEMENT ———
- COUNTY HIGHWAY EASEMENT ———
- STATE HIGHWAY ENCROACHMENT PERMIT ———
- RAILROAD EASEMENT/CONTRACT ———
- CITY STREETS/PROPERTY ———
- PROPERTY OWNED IN FEE SIMPLE TITLE ———
- EASEMENT ON WHICH STRUCTURE(S) WILL BE CONSTRUCTED ———

Blair Clark
OWNER (Appropriate Official of Governing Body) _____ DATE _____

*R. Alan P...
CONSULTING ENGINEER/ARCHITECT _____ DATE 10/20/2020*

*Paul ...
OWNER'S LOCAL COUNSEL _____ DATE 11/16/20*



PHASE 11 SYSTEM IMPROVEMENTS/METER SETTING, 80 DWT, 6, 10/2/2020 | 11:45 PM, Dwg. AutoCAD 2014, 10/2/2020

DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
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APPROVED	RAB			

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bell engineering

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Asheville, NC (828) 774-5499

PHASE 11 SYSTEM IMPROVEMENTS
ZONE METER & RIVER CROSSING INSTALLATION)
ESTILL COUNTY WATER DISTRICT #1
IRVINE, KENTUCKY

RD ROW SITE PLAN
ZONE METERS
BEATTYVILLE ROAD ZONE
AND COB HILL ZONE

DIVISION —
CONTRACT NO. 371-19-01
DATE NOVEMBER 2019
SHEET NO. 8 OF 8

GRAPHIC SCALE
SCALE: AS NOTED

EXHIBIT 20

County: Estill County, Kentucky
Easement No. 1
Refer to Sheet No. E-1
Contract 371-19-01
Total Footage 77 ft.
Date June 2020

CENTERLINE DESCRIPTION

FOR

WATER MAIN EASEMENT

FROM: Charles and Nancy Noble 835 Cressy Road, Irvine, KY 40336
(Name of Property Owner) (Address of Property Owner)

Beginning at a point in the Charles and Nancy Noble and Jason and Amy French property line, said point being 551 feet, more or less, measured in a southwesterly direction along said property line from the Charles and Nancy Noble and Jason and Amy French property corner, said corner being in the West right-of-way of Murphys Ford Road; thence, across the property of Charles and Nancy Noble, 8 feet, more or less, measured in a southeasterly direction to a point; thence 44 feet, more or less, measured in a southeasterly direction to a point; thence 25 feet, more or less, measured in an easterly direction to a point in the Charles and Nancy Noble property, said point being 544 feet, more or less, measured in a southwesterly direction along said property from the Charles and Nancy Noble and Jason and Amy French property corner, said corner being in the West right-of-way of Murphys Ford Road.

The permanent easement shall be a strip of land 15 feet wide extending 7.5 feet on each side of the above described centerline.

The temporary construction easement shall be a strip of land 30 feet wide extending 15 feet on each side of the above described centerline.

Beginning at a point in the Charles and Nancy Noble and Jason and Amy French property line, said point being 551 feet, more or less, measured in a southwesterly direction along said property line from the Charles and Nancy Noble and Jason and Amy French property corner,

said corner being in the West right-of-way of Murphys Ford Road; thence, across the property of Charles and Nancy Noble 22 feet, more or less, measured in a southerly direction to a point; thence, 20 feet, more or less, measured in a northeasterly direction to a point; thence 40 feet, more or less, measured in a southeasterly direction to a point; thence, 20 feet, more or less, measured in a southwesterly direction to a point; thence 40 feet, more or less, measured in a northwesterly direction to the point of beginning, being an 800 square foot area for use as a temporary construction easement for a directional bore pit.

This temporary construction easement shall be a strip of land 60 feet wide extending 30 feet on the right side and 30 feet on the left side of the above described centerline.

Jeff Hix, PVA
130 Main Street
Courthouse, Room 104
Irvine, KY 40336
Office: 606-723-4569



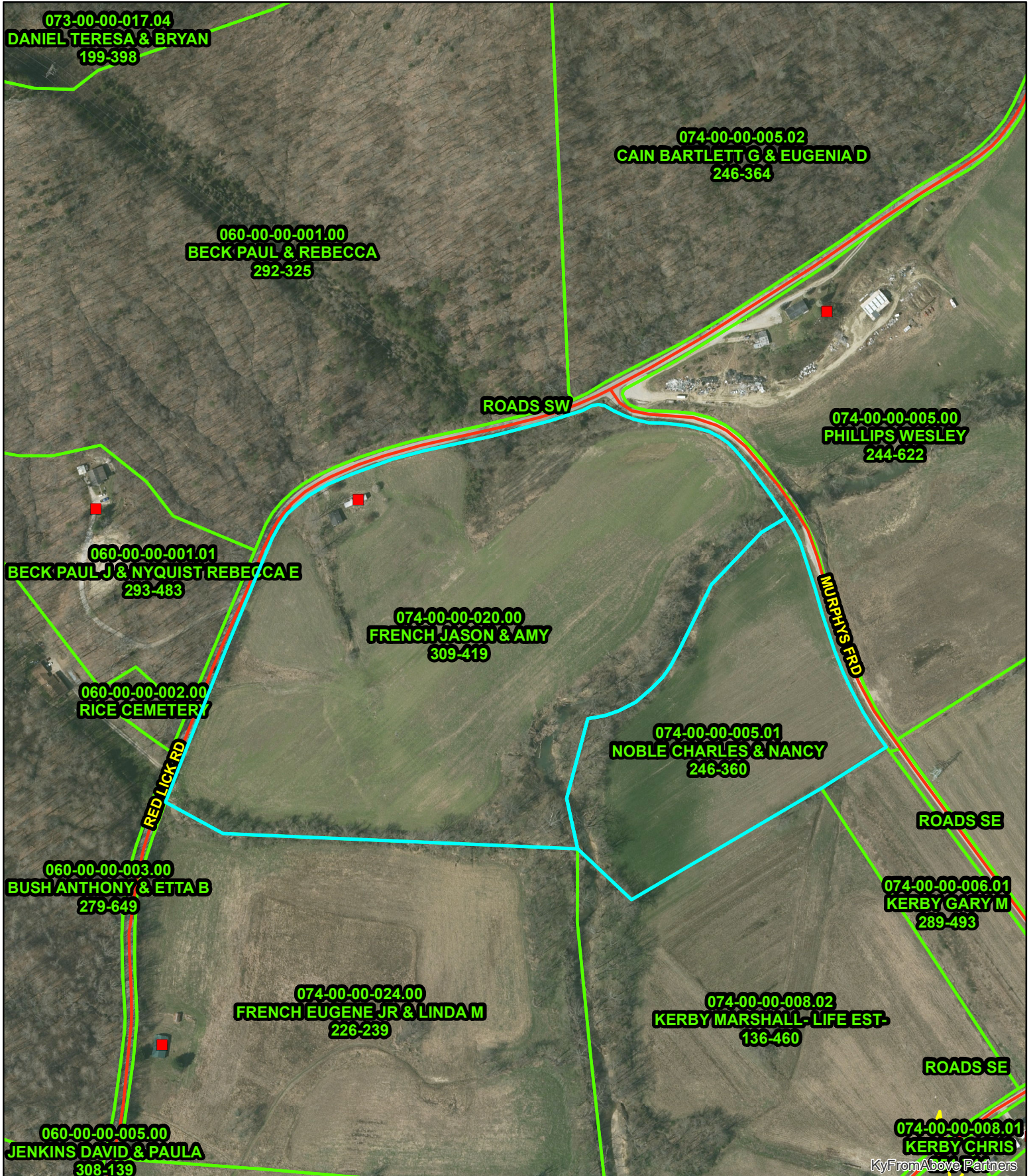
Estill County Property Valuation Administration

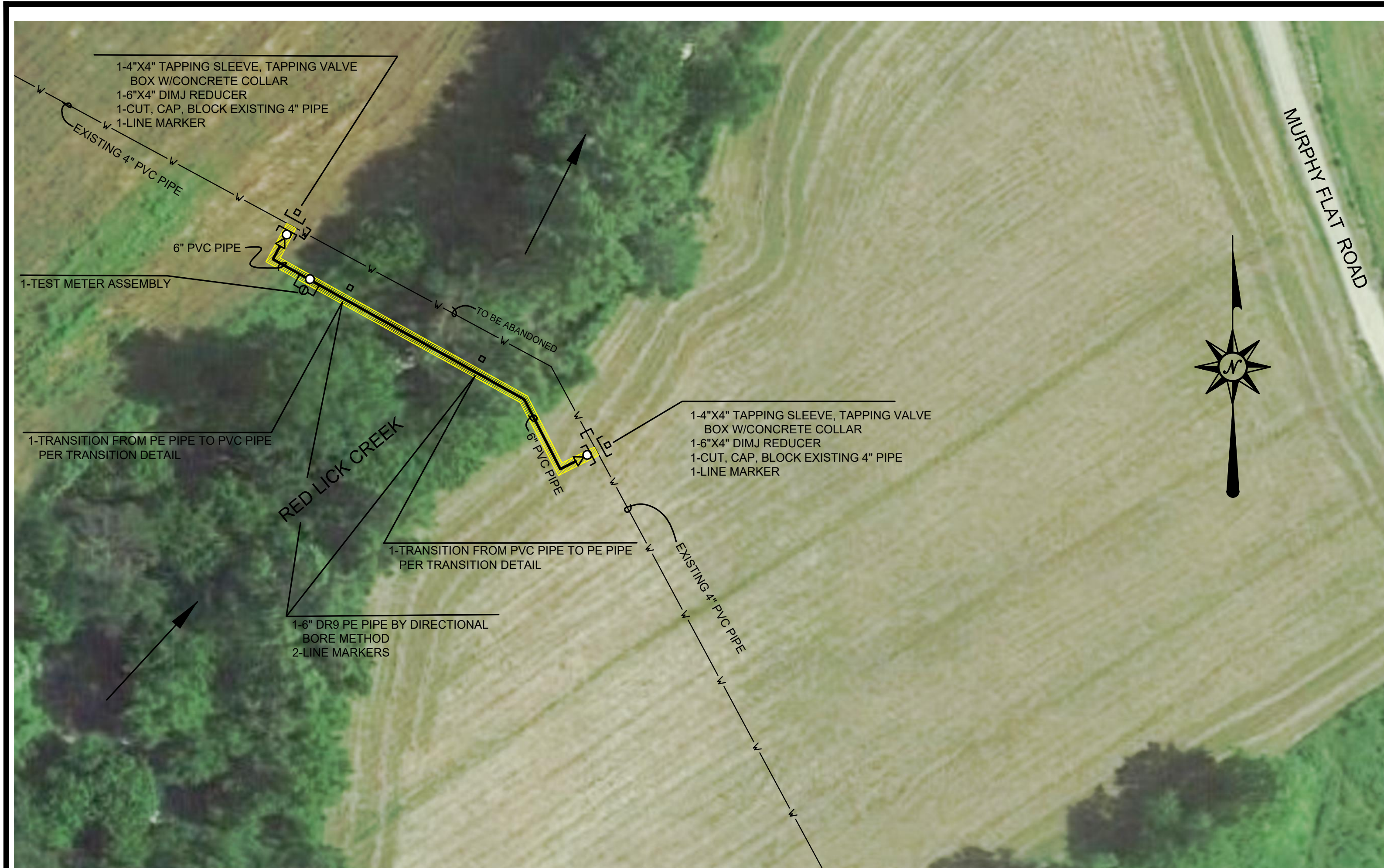
Date: June 15, 2020
Aerial Date: Summer 2016



Map to be used
for identification only,
NOT for conveyance

1 inch = 312 feet

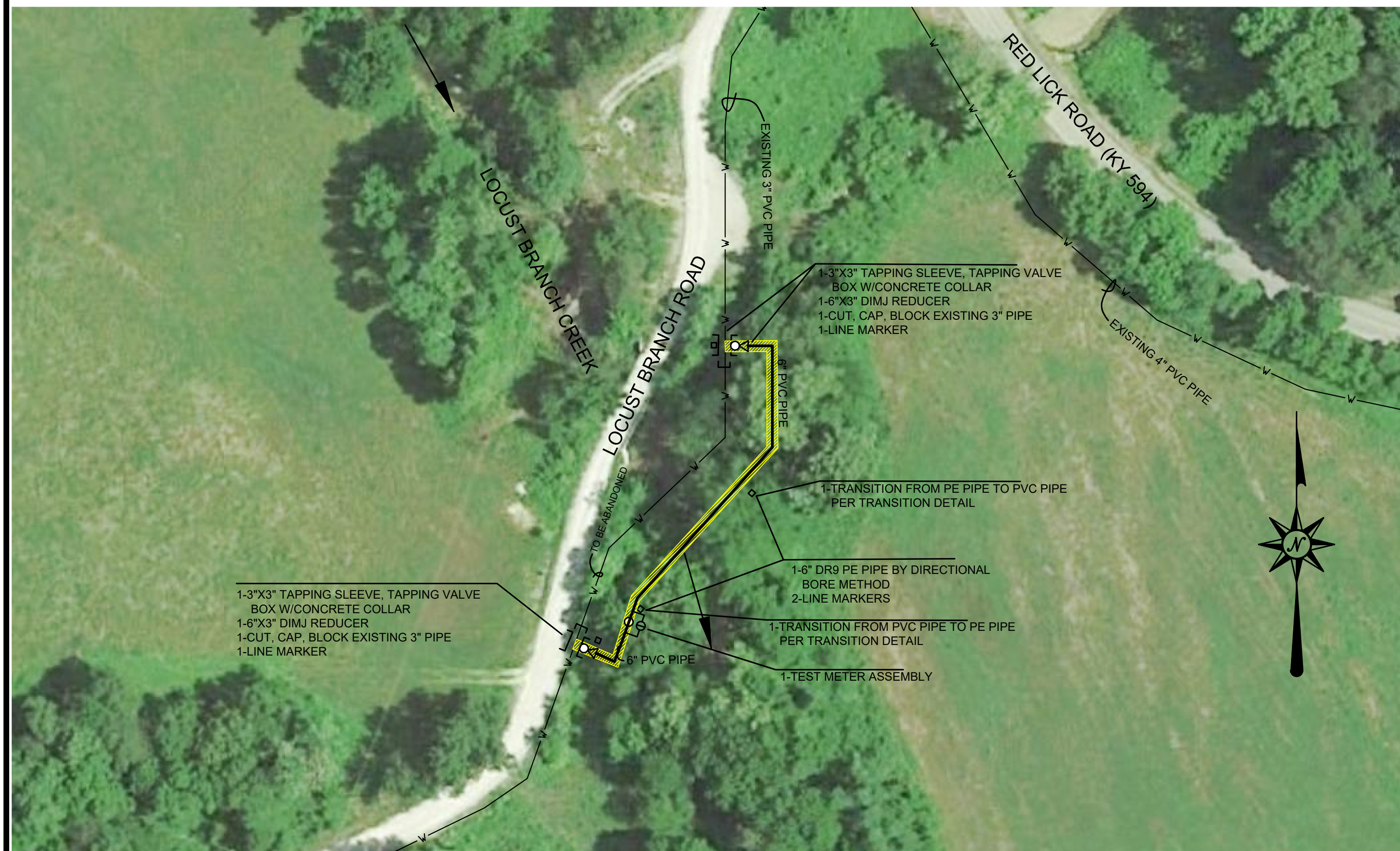




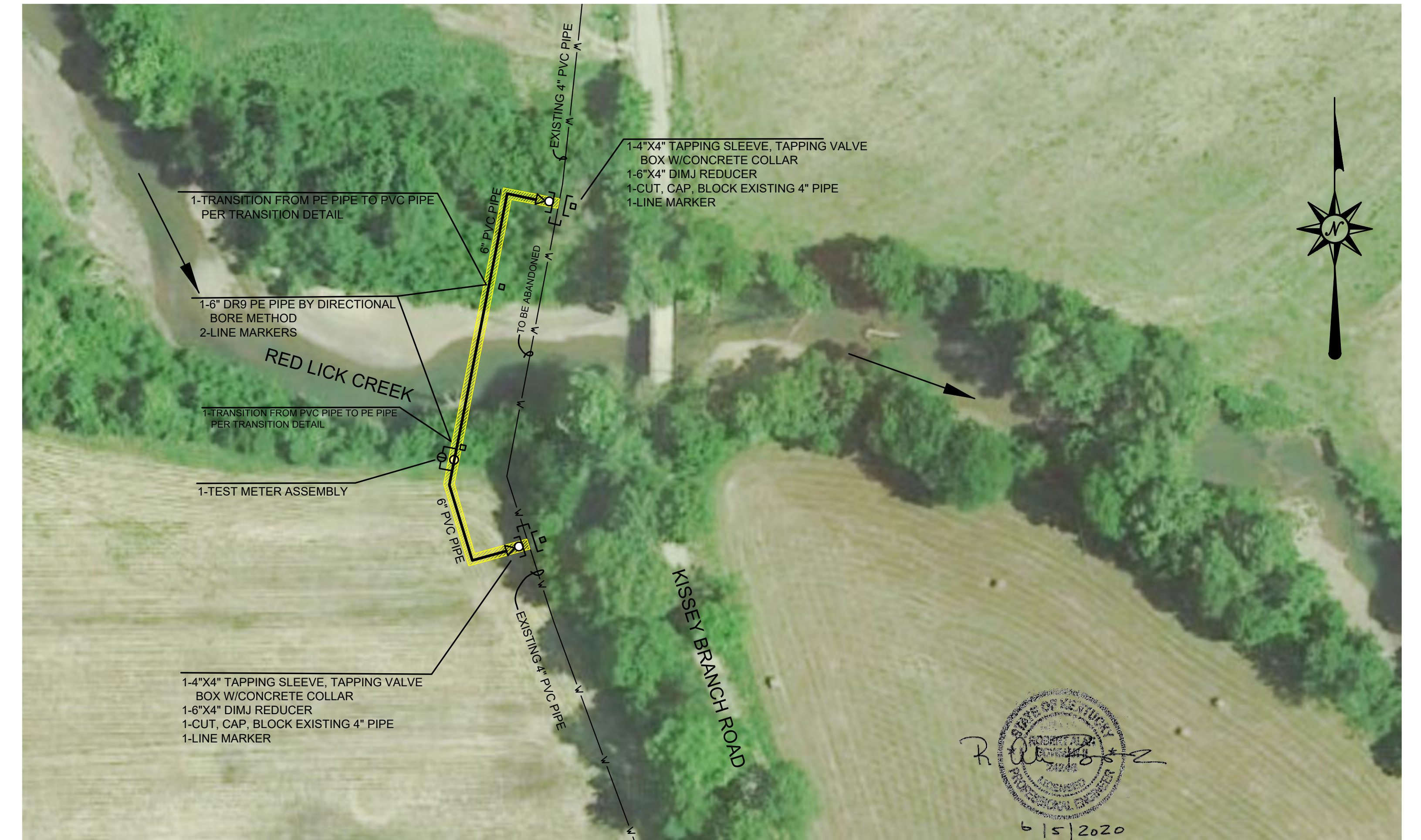
MURPHY FORD 4
SCALE: 1"=50'



McSWAIN BRANCH 3
SCALE: 1"=50'

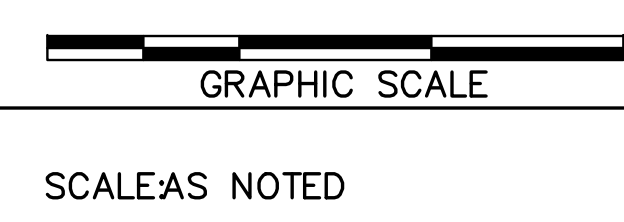


LOCUST BRANCH 3
SCALE: 1"=50'

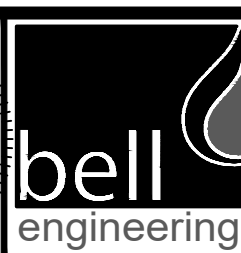
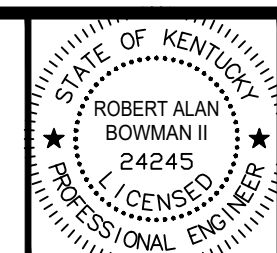


KISSEY BRANCH
SCALE: 1"=50'

DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
CHECKED	RAB			
APPROVED	SHC			



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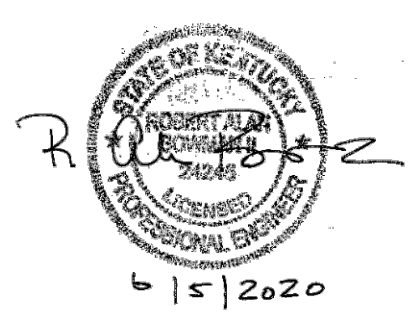
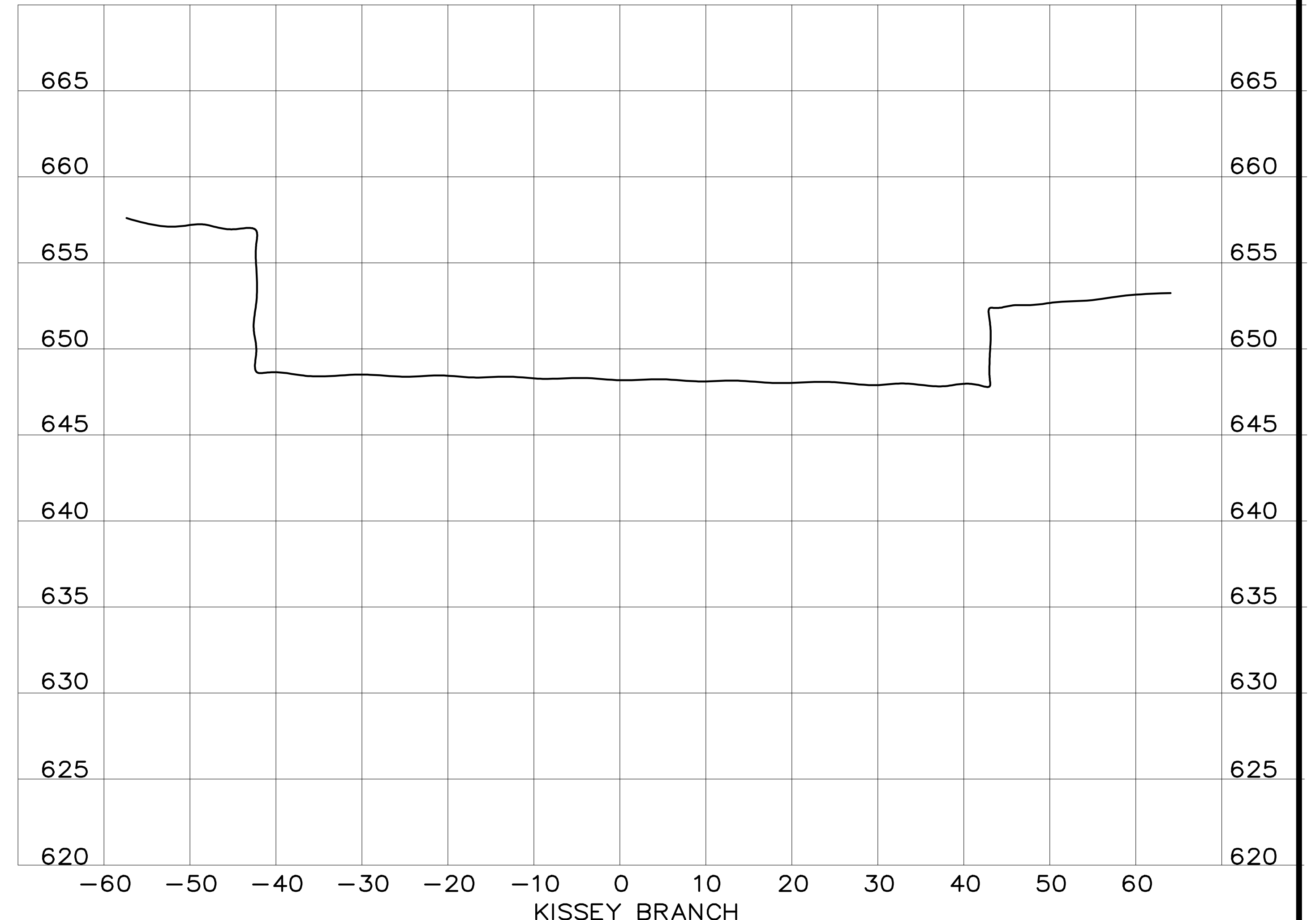
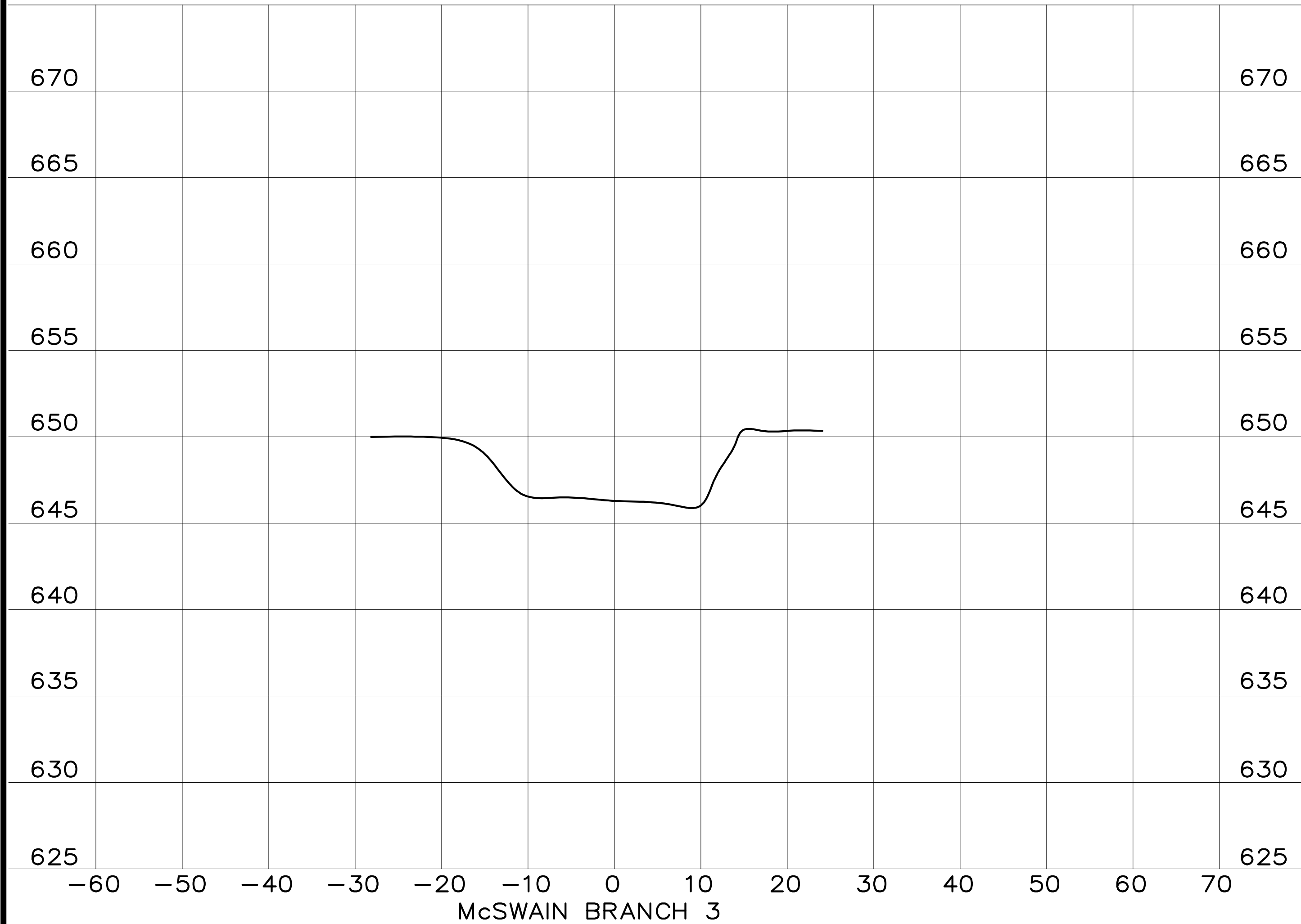
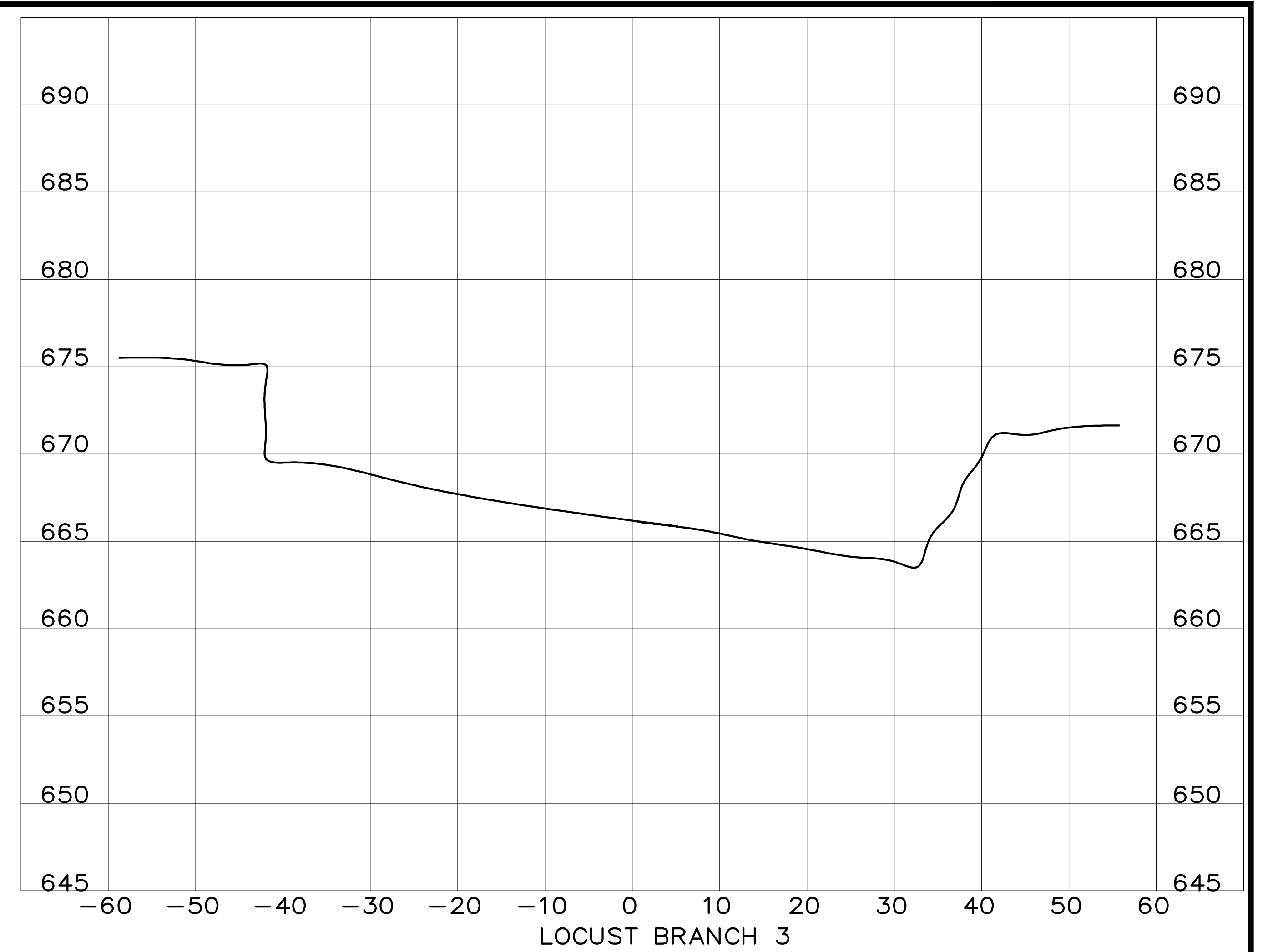
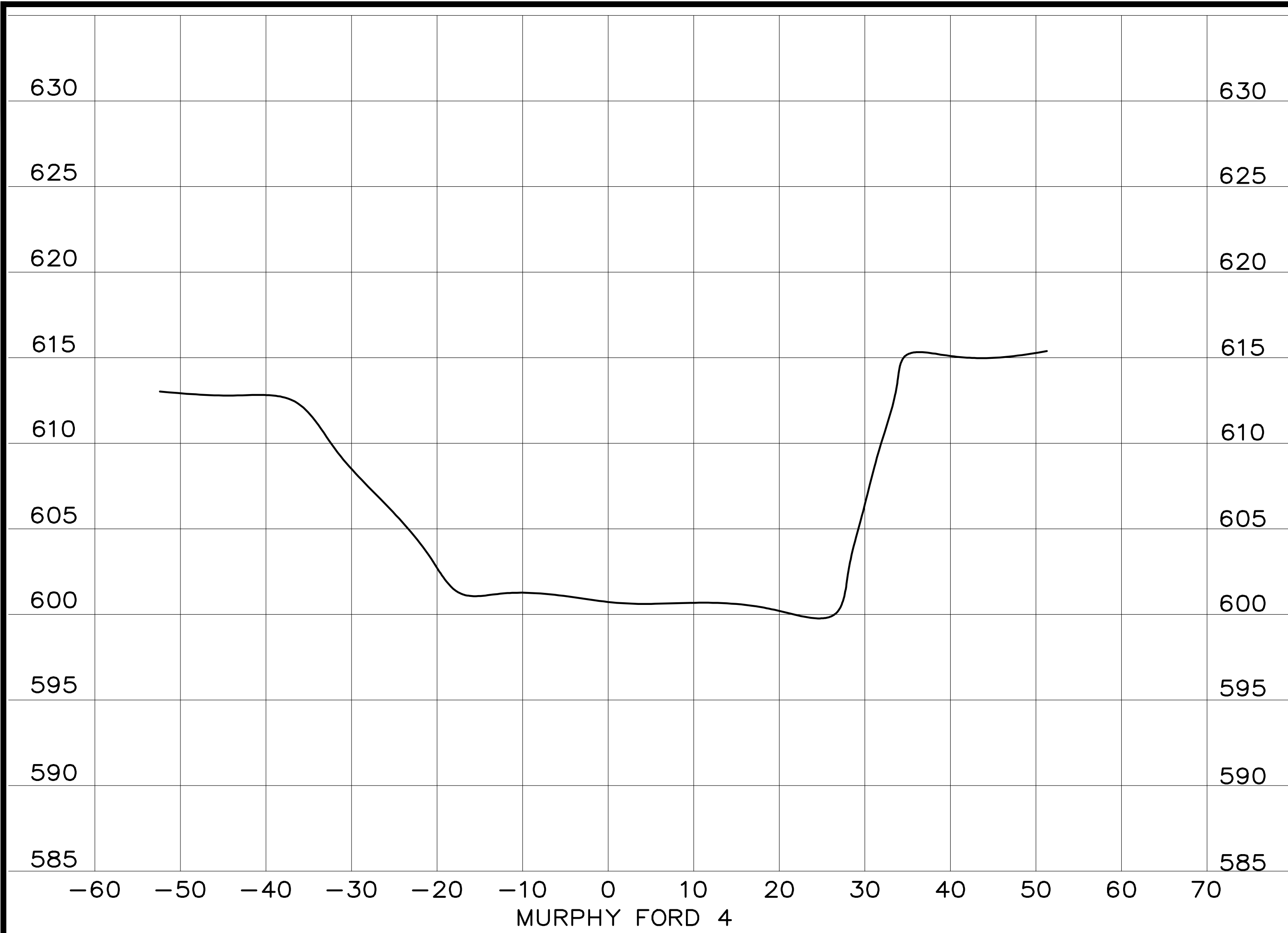


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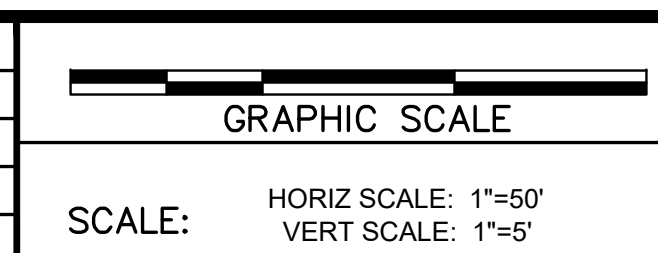
PHASE 11 SYSTEM IMPROVEMENTS
ESTILL COUNTY WATER DISTRICT #1
ESTILL COUNTY, KENTUCKY

DIVISION -
CONTRACT NO. 371-19-01
DATE NOVEMBER 2019
SHEET NO. 2 OF 8

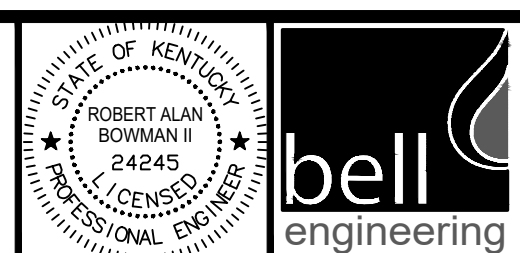
6/15/2020



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PHASE 11 SYSTEM IMPROVEMENTS
 ESTILL COUNTY WATER DISTRICT #1
 ESTILL COUNTY, KENTUCKY

CROSSING PROFILES

DIVISION	-
CONTRACT NO.	371-19-01
DATE	NOVEMBER 2019
SHEET NO.	3 OF 8

County: Estill County, Kentucky
Easement No. 2
Refer to Sheet No. E-1
Contract 371-19-01
Total Footage 187 ft.
Date June 2020

CENTERLINE DESCRIPTION

FOR

WATER MAIN EASEMENT

FROM: Jason and Amy French 8655 Red Lick Road, Irvine, KY 40336
(Name of Property Owner) (Address of Property Owner)

Beginning at a point in the Charles and Nancy Noble and Jason and Amy French property line, said point being 551 feet, more or less, measured in a southwesterly direction along said property line from the Charles and Nancy Noble and Jason and Amy French property corner, said corner being in the West right-of-way of Murphys Ford Road; thence, across the property of Jason and Amy French, 162 feet, more or less, measured in a northwesterly direction to a point; thence 25 feet, more or less, measured in a northeasterly direction to a point in the Jason and Amy French property, said point being 540 feet, more or less, measured in a southwesterly direction along said property from the Charles and Nancy Noble and Jason and Amy French property corner, said corner being in the West right-of-way of Murphys Ford Road.

The permanent easement shall be a strip of land 15 feet wide extending 7.5 feet on each side of the above described centerline.

The temporary construction easement shall be a strip of land 30 feet wide extending 15 feet on each side of the above described centerline.

Beginning at a point in the Charles and Nancy Noble and Jason and Amy French property line, said point being 551 feet, more or less, measured in a southwesterly direction along said property line from the Charles and Nancy Noble and Jason and Amy French property corner, said corner being in the West right-of-way of Murphys Ford Road; thence, across the property of

Jason and Amy French 144 feet, more or less, measured in a northwesterly direction to a point; thence, 20 feet, more or less, measured in a northeasterly direction to a point; thence 40 feet, more or less, measured in a northwesterly direction to a point; thence, 20 feet, more or less, measured in a southwesterly direction to a point; thence 40 feet, more or less, measured in a southeasterly direction to the point of beginning, being an 800 square foot area for use as a temporary construction easement for a directional bore pit.

This temporary construction easement shall be a strip of land 60 feet wide extending 30 feet on the right side and 30 feet on the left side of the above described centerline.

Jeff Hix, PVA
130 Main Street
Courthouse, Room 104
Irvine, KY 40336
Office: 606-723-4569



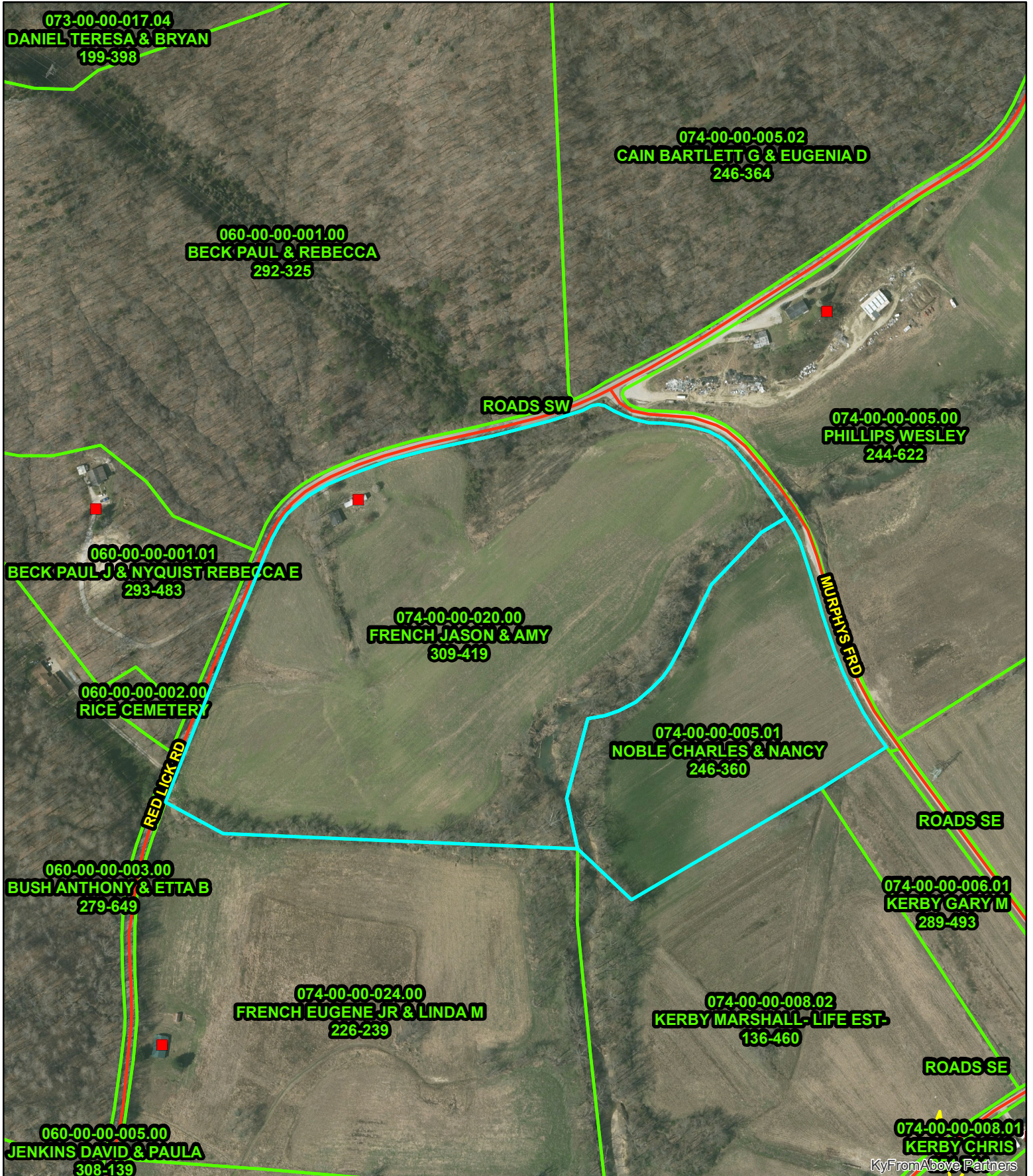
Estill County Property Valuation Administration

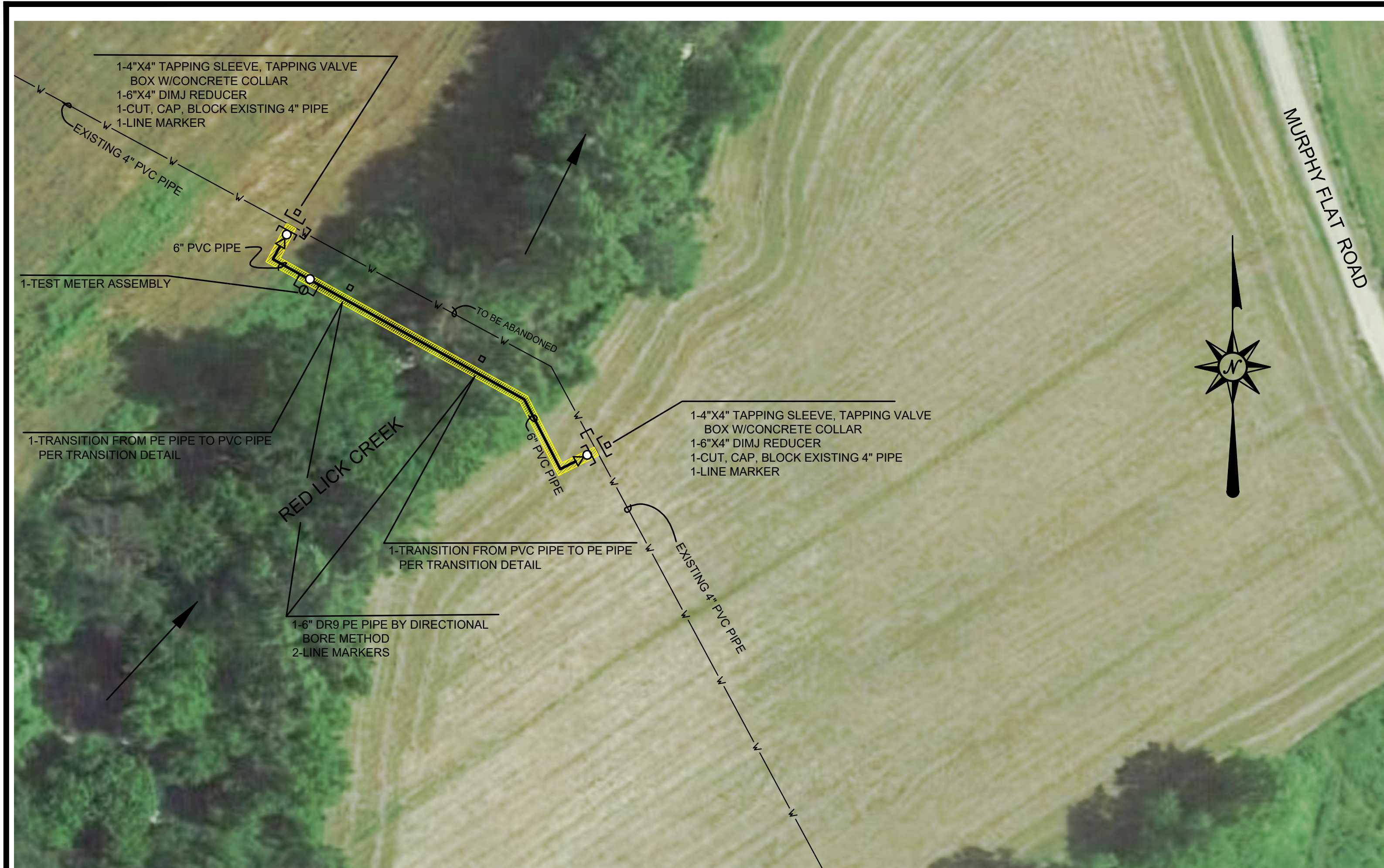
Date: June 15, 2020
Aerial Date: Summer 2016



Map to be used
for identification only,
NOT for conveyance

1 inch = 312 feet

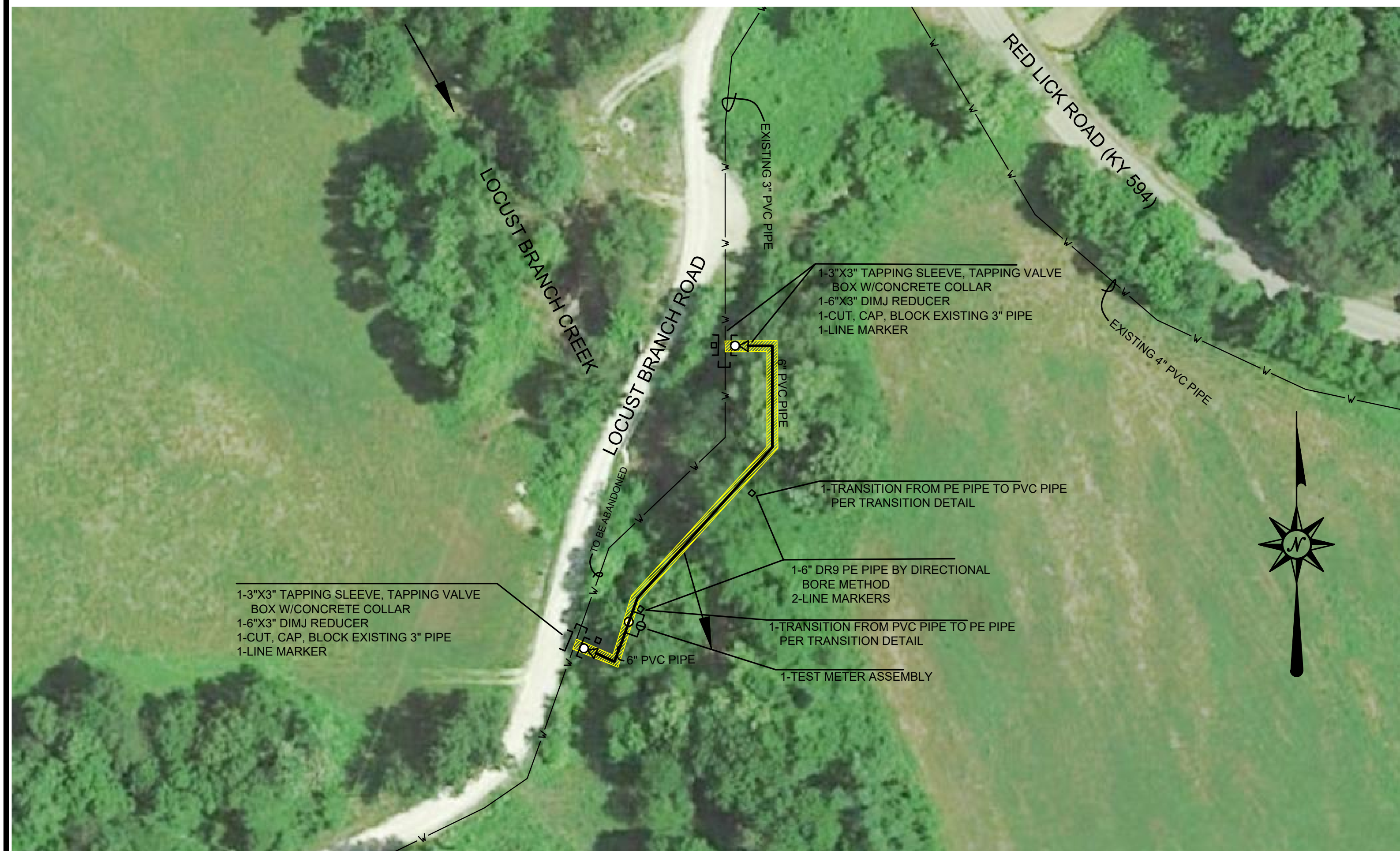




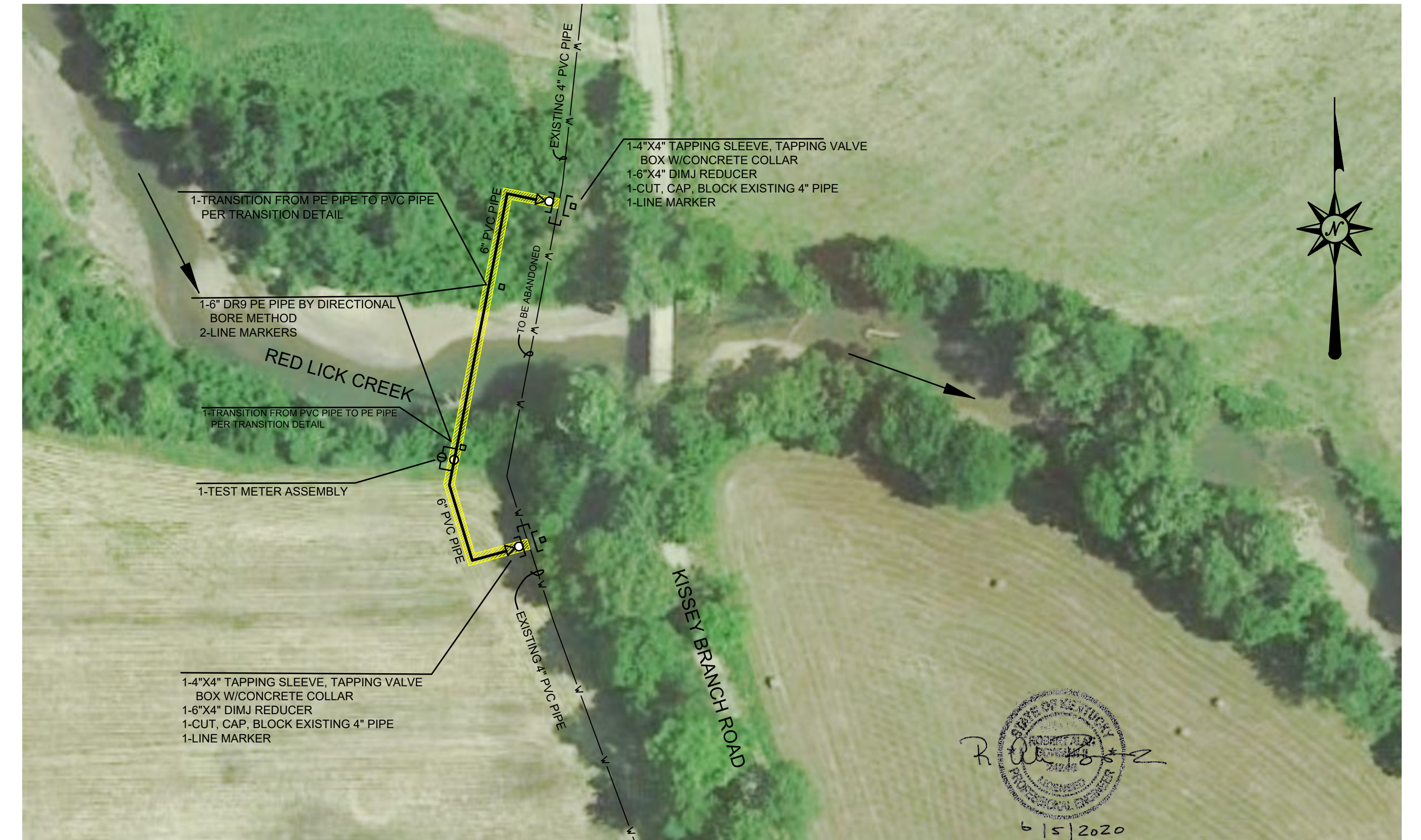
MURPHY FORD 4
SCALE: 1"=50'



McSWAIN BRANCH 3
SCALE: 1"=50'

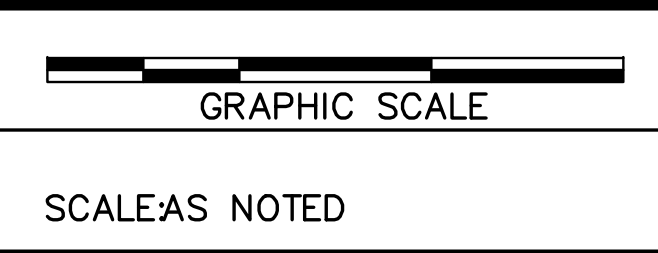


LOCUST BRANCH 3
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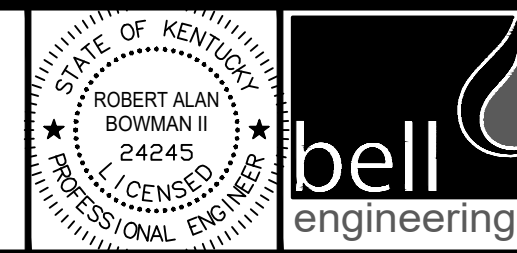


KISSEY BRANCH
SCALE: 1"=50'

DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
CHECKED	RAB			
APPROVED	SHC			



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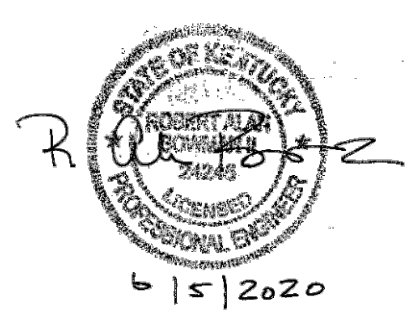
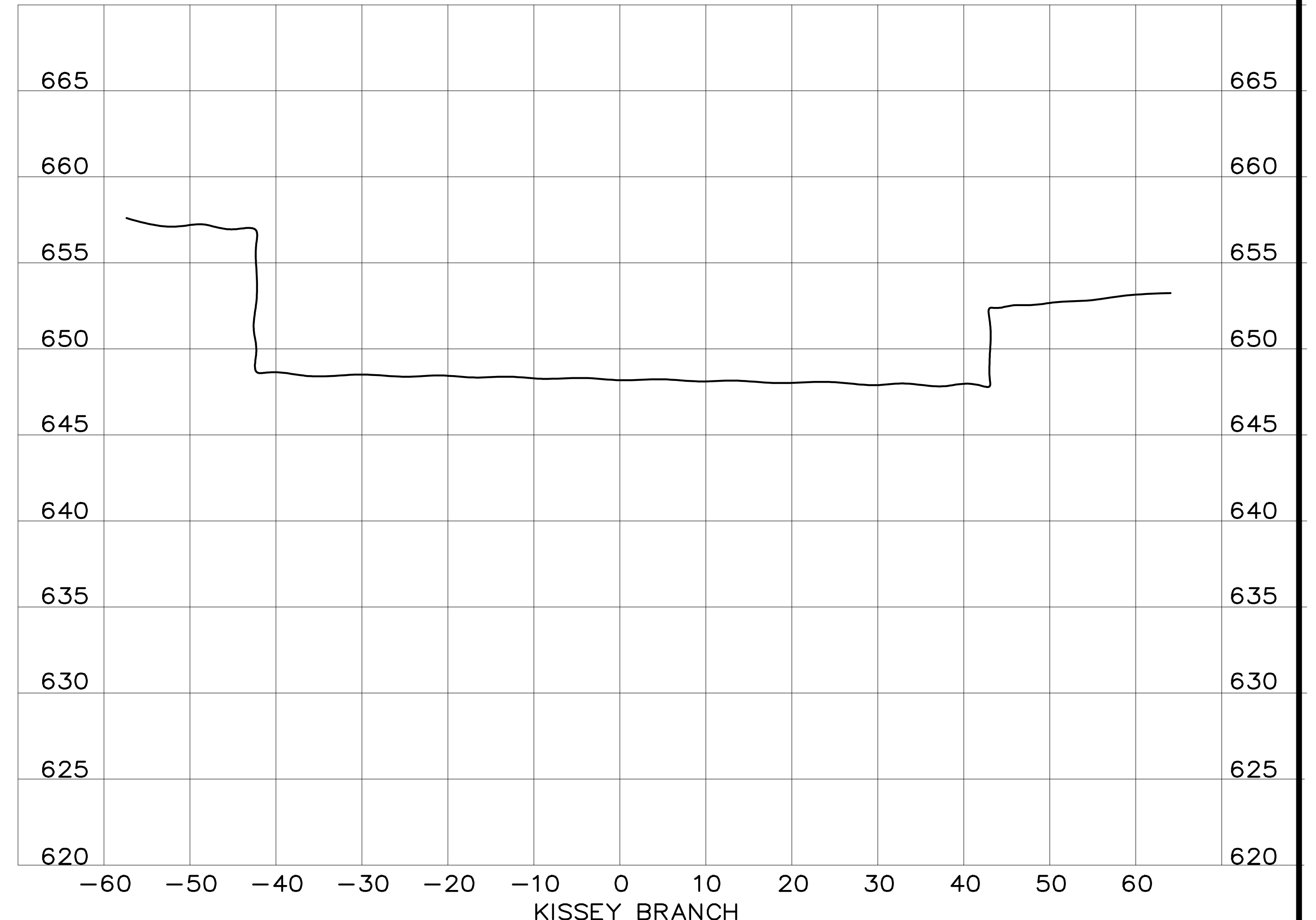
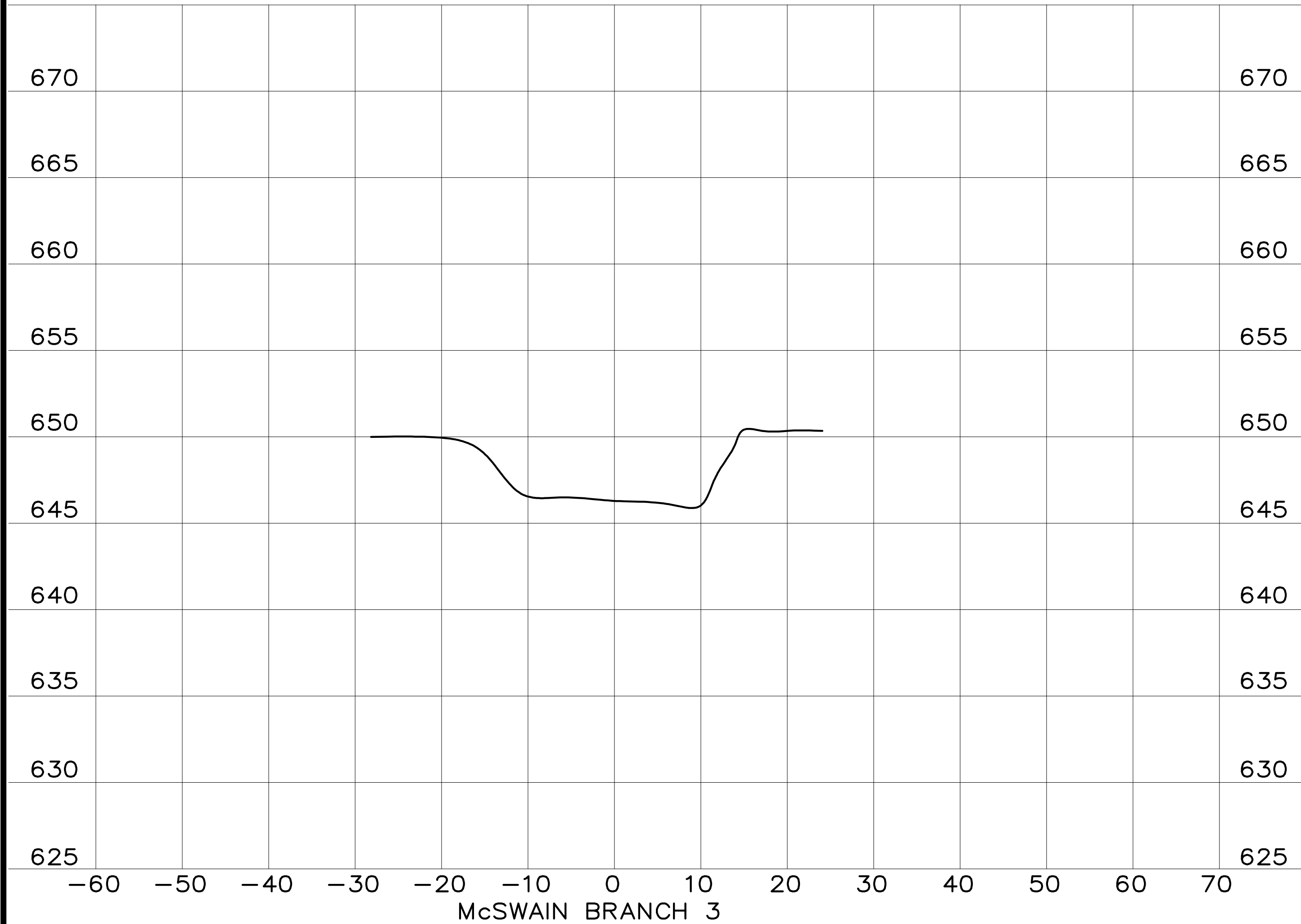
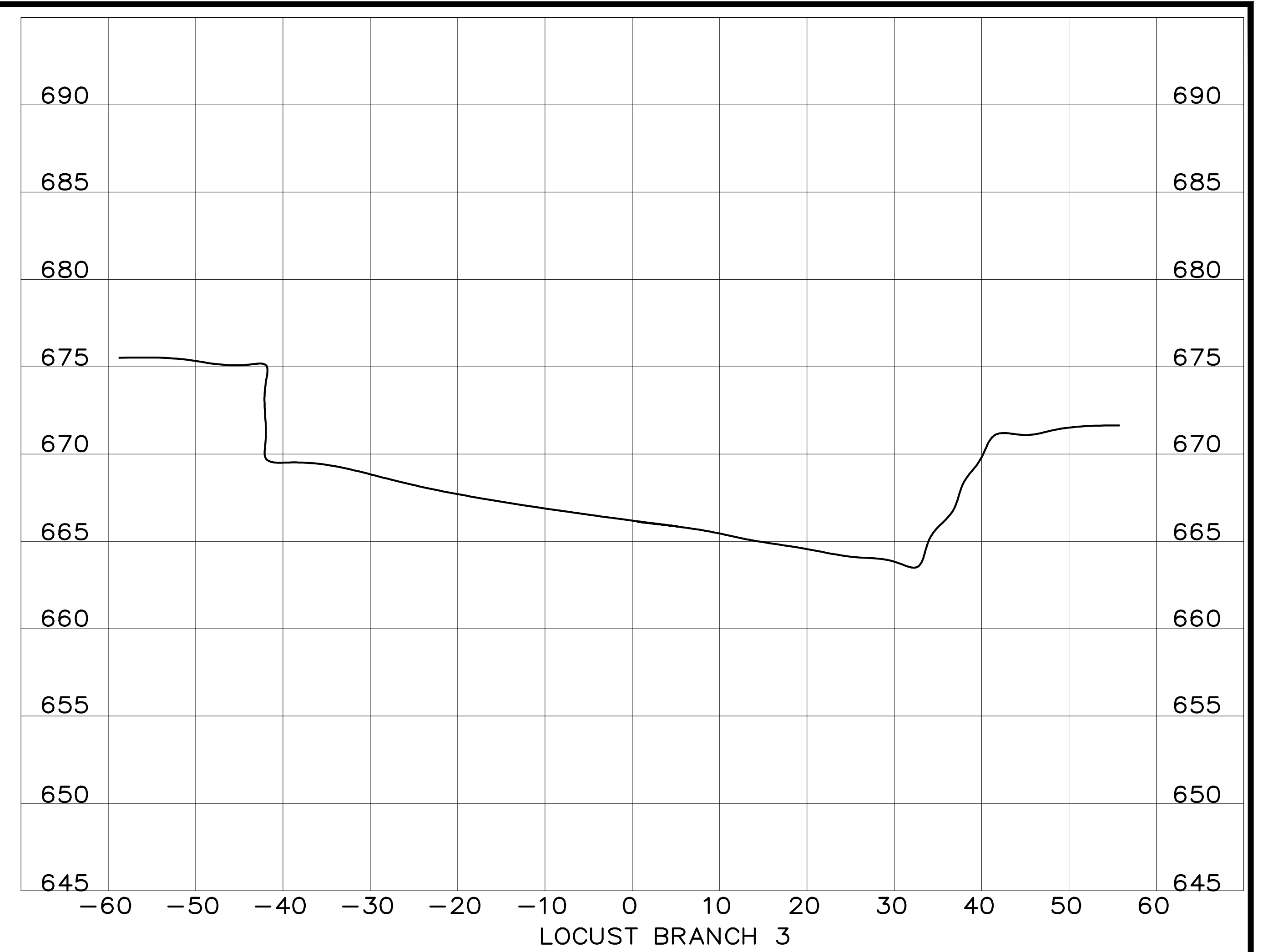
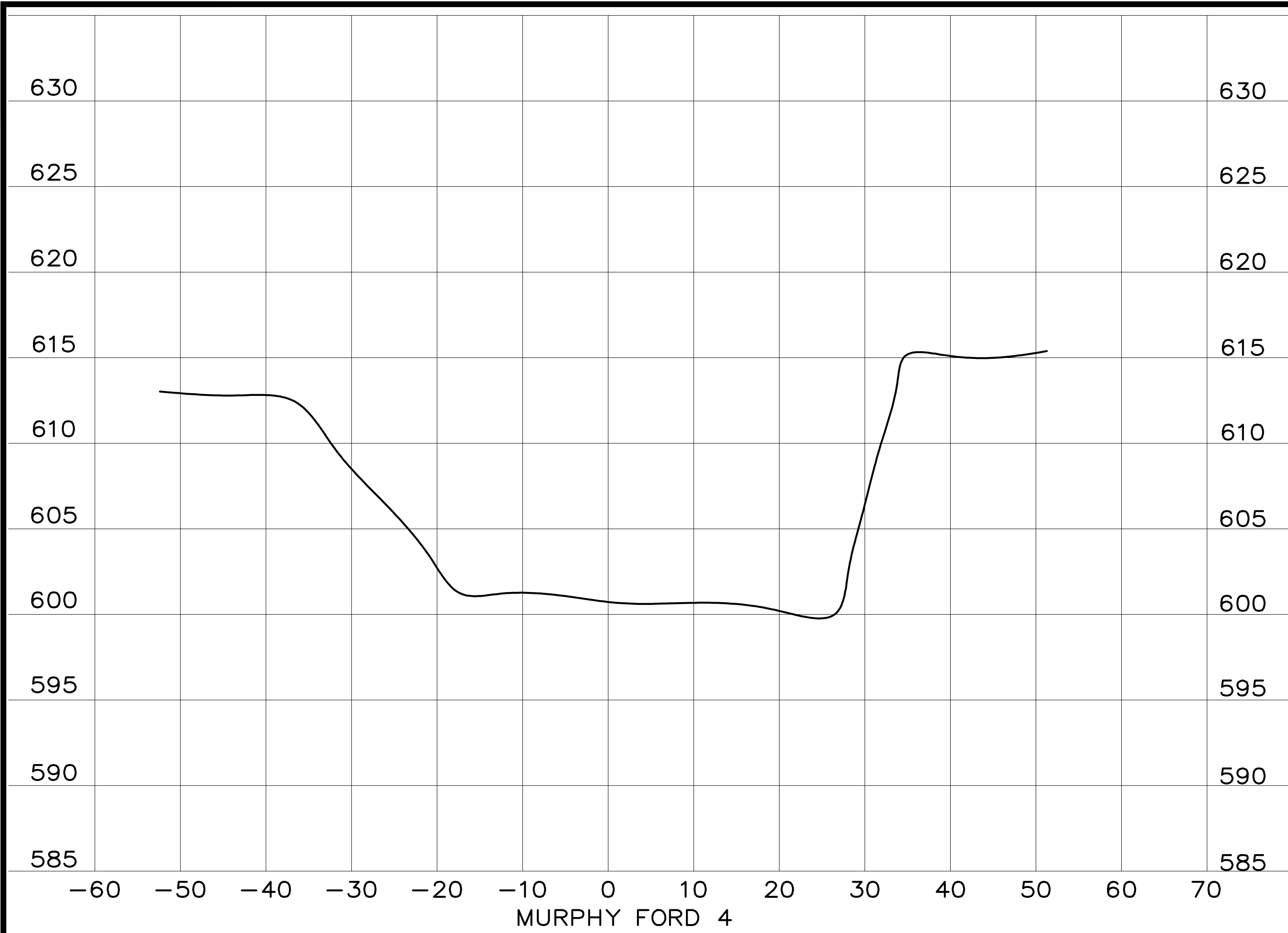


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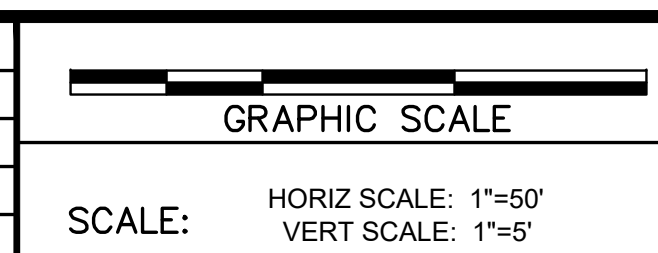
PHASE 11 SYSTEM IMPROVEMENTS
ESTILL COUNTY WATER DISTRICT #1
ESTILL COUNTY, KENTUCKY

DIVISION -
CONTRACT NO. 371-19-01
DATE NOVEMBER 2019
SHEET NO. 2 OF 8

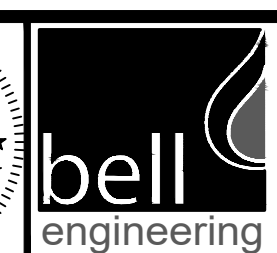
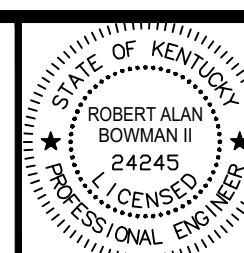
DIVISION -
CONTRACT NO. 371-19-01
DATE NOVEMBER 2019
SHEET NO. 2 OF 8



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PHASE 11 SYSTEM IMPROVEMENTS
 ESTILL COUNTY WATER DISTRICT #1
 ESTILL COUNTY, KENTUCKY

CROSSING PROFILES

DIVISION	-
CONTRACT NO.	371-19-01
DATE	NOVEMBER 2019
SHEET NO.	3 OF 8

County: Estill County, Kentucky
Easement No. 3
Refer to Sheet No. E-2
Contract 371-19-01
Total Footage 158 ft.
Date June 2020

CENTERLINE DESCRIPTION

FOR

WATER MAIN EASEMENT

FROM: Ronald L Miller 6800 Red Lick Road, Irvine, KY 40336
(Name of Property Owner) (Address of Property Owner)

Beginning at a point in the Ronald Miller property, said point being 138 feet, more or less, measured in a southeasterly direction along said property from the Ronald Miller and Lester and Tammy Cole property corner, said corner being in the South right-of-way of McSwain Branch Road; thence, across the property of Ronald Miller, 25 feet, more or less, measured in a northeasterly direction to a point; thence 108 feet, more or less, measured in a southeasterly direction to a point; thence 25 feet, more or less, measured in a southwesterly direction to a point in the Ronald Miller property, said point being 246 feet, more or less, measured in a southeasterly direction along said property from the Ronald Miller and Lester and Tammy Cole property corner, said corner being in the South right-of-way of McSwain Branch Road.

The permanent easement shall be a strip of land 15 feet wide extending 7.5 feet on each side of the above described centerline.

The temporary construction easement shall be a strip of land 30 feet wide extending 15 feet on each side of the above described centerline.

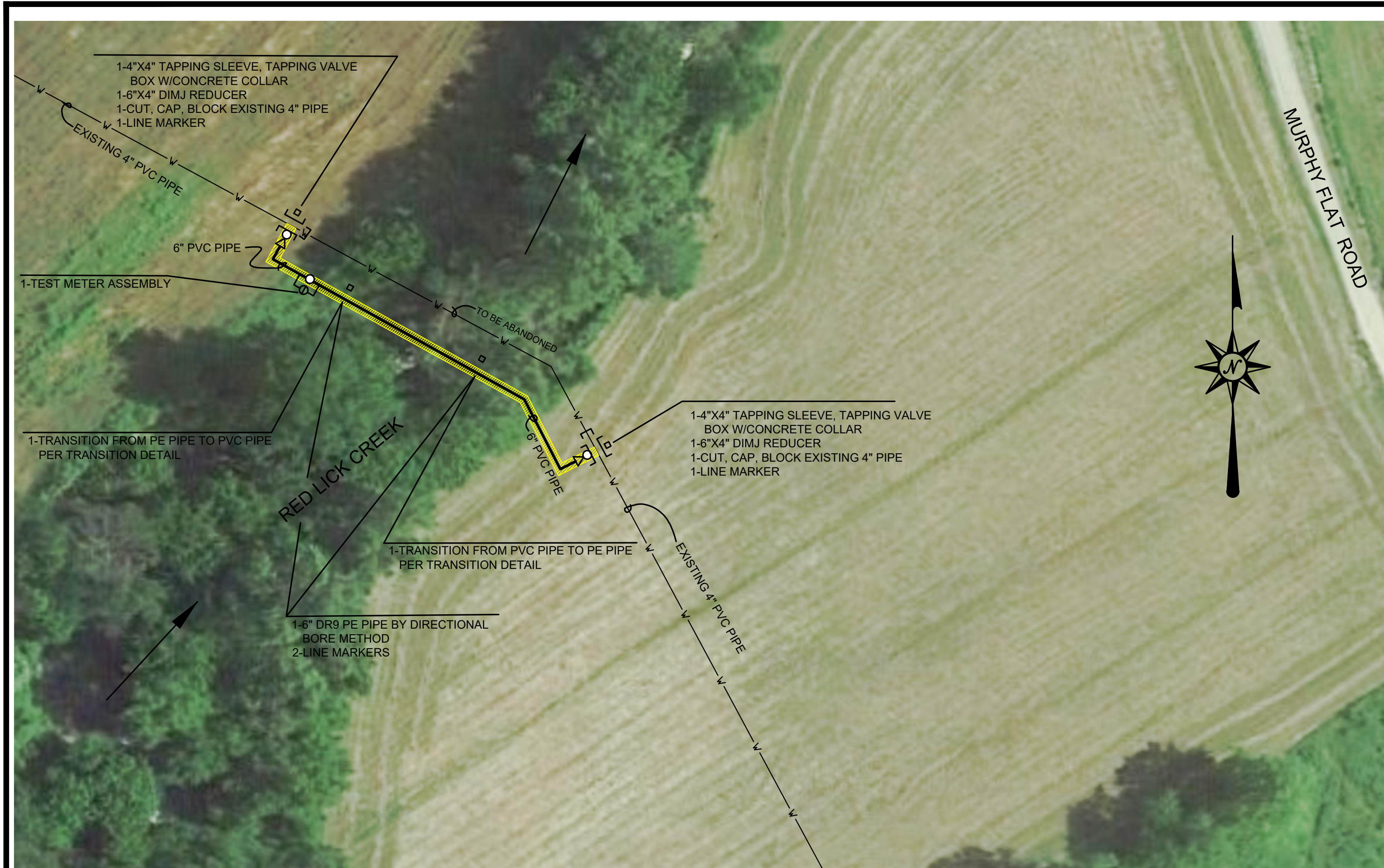
Beginning at a point in the Ronald Miller property, said point being 133 feet, more or less, measured in a southeasterly direction along said property from the Ronald Miller and Lester and Tammy Cole property corner, said corner being in the South right-of-way of McSwain Branch Road; thence, 20 feet, more or less, measured in a northeasterly direction to a point; thence 40 feet,

more or less, measured in a southeasterly direction to a point; thence, 20 feet, more or less, measured in a southwesterly direction to a point; thence 40 feet, more or less, measured in a northwesterly direction to the point of beginning, being an 800 square foot area for use as a temporary construction easement for a directional bore pit.

This temporary construction easement shall be a strip of land 60 feet wide extending 30 feet on the right side and 30 feet on the left side of the above described centerline.

Beginning at a point in the Ronald Miller property, said point being 209 feet, more or less, measured in a southeasterly direction along said property from the Ronald Miller and Lester and Tammy Cole property corner, said corner being in the South right-of-way of McSwain Branch Road; thence, 20 feet, more or less, measured in a northeasterly direction to a point; thence 40 feet, more or less, measured in a southeasterly direction to a point; thence, 20 feet, more or less, measured in a southwesterly direction to a point; thence 40 feet, more or less, measured in a northwesterly direction to the point of beginning, being an 800 square foot area for use as a temporary construction easement for a directional bore pit.

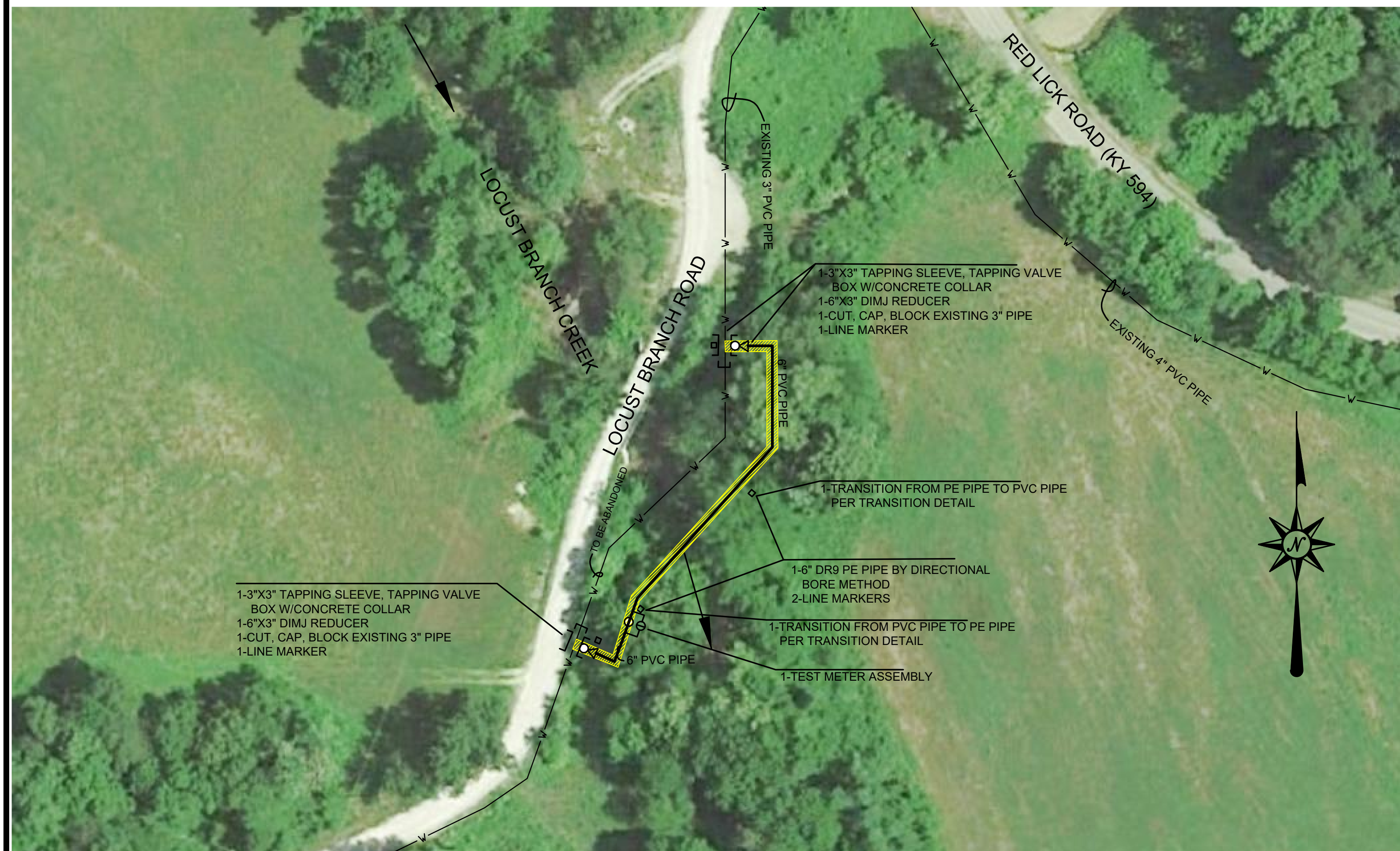
This temporary construction easement shall be a strip of land 60 feet wide extending 30 feet on the right side and 30 feet on the left side of the above described centerline.



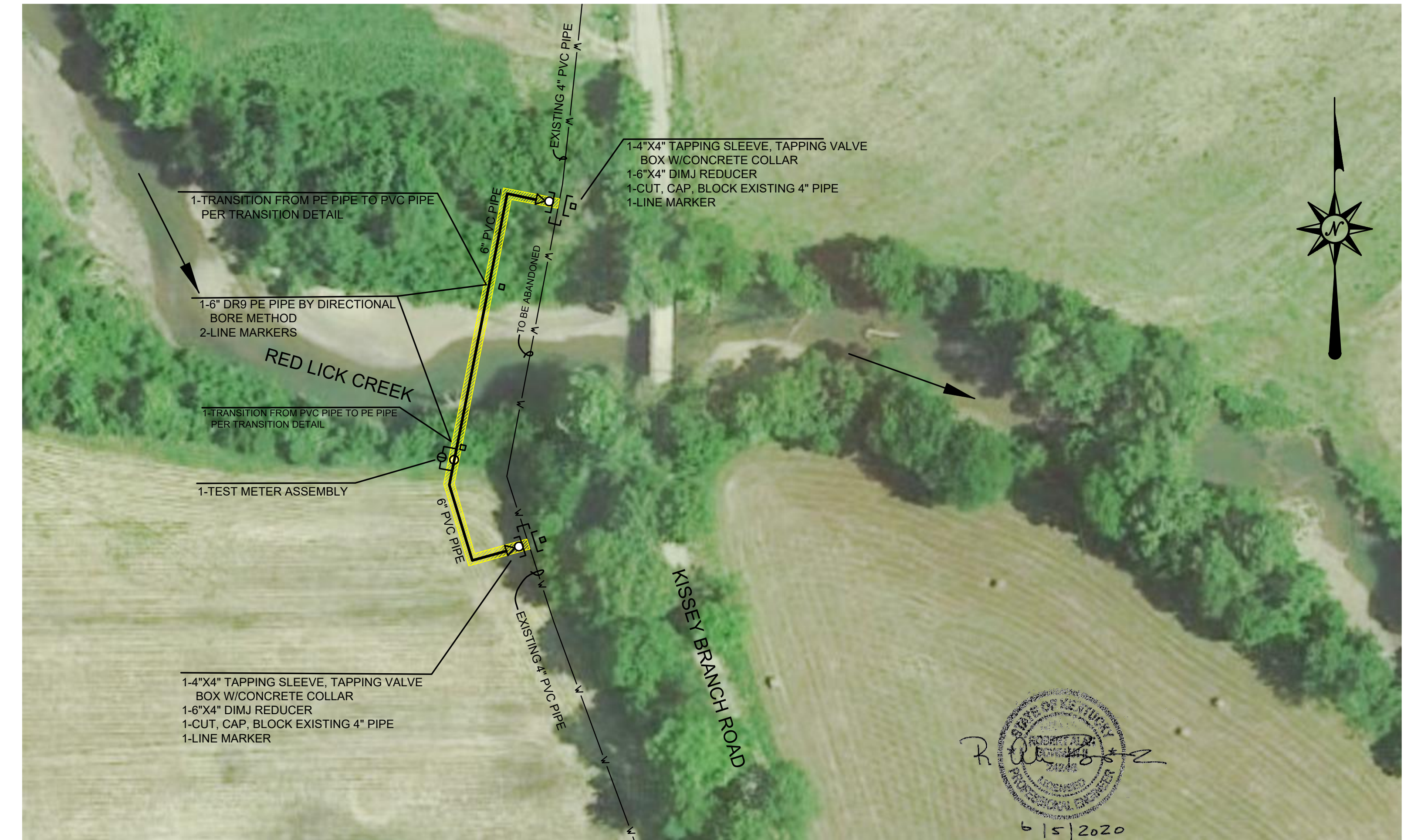
MURPHY FORD 4
SCALE: 1"=50'



McSWAIN BRANCH 3
SCALE: 1"=50'

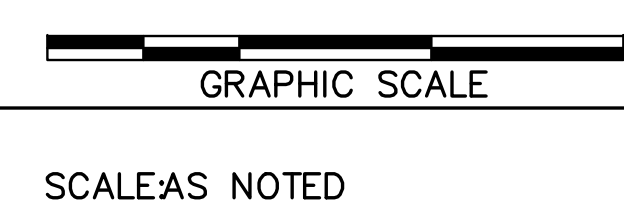


LOCUST BRANCH 3
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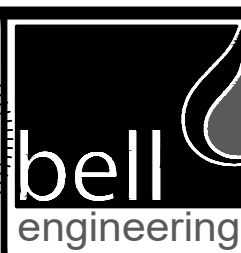
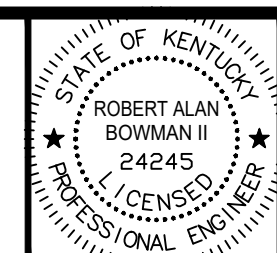


KISSEY BRANCH
SCALE: 1"=50'

DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
CHECKED	RAB			
APPROVED	SHC			



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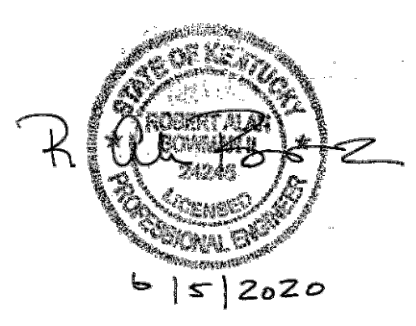
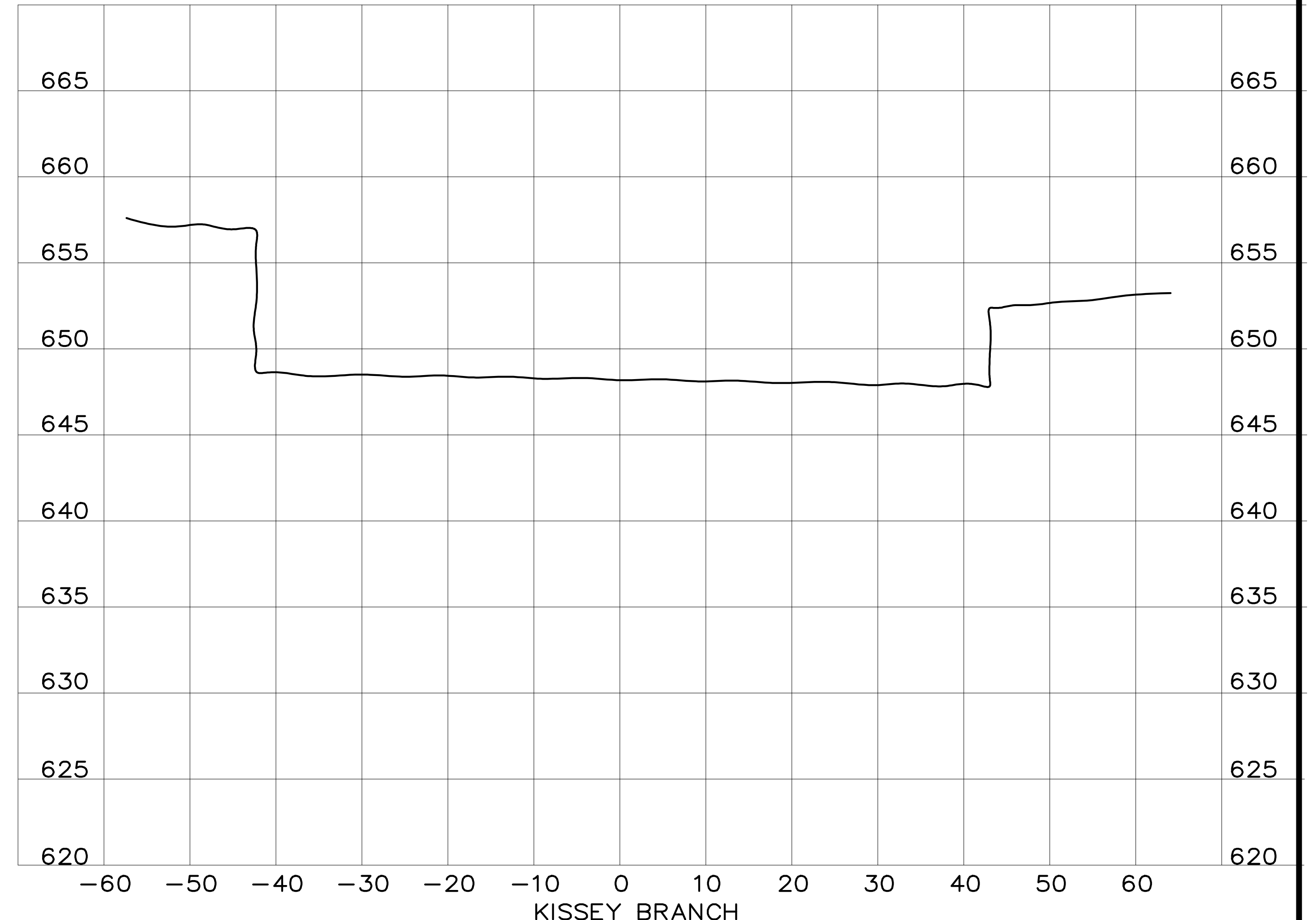
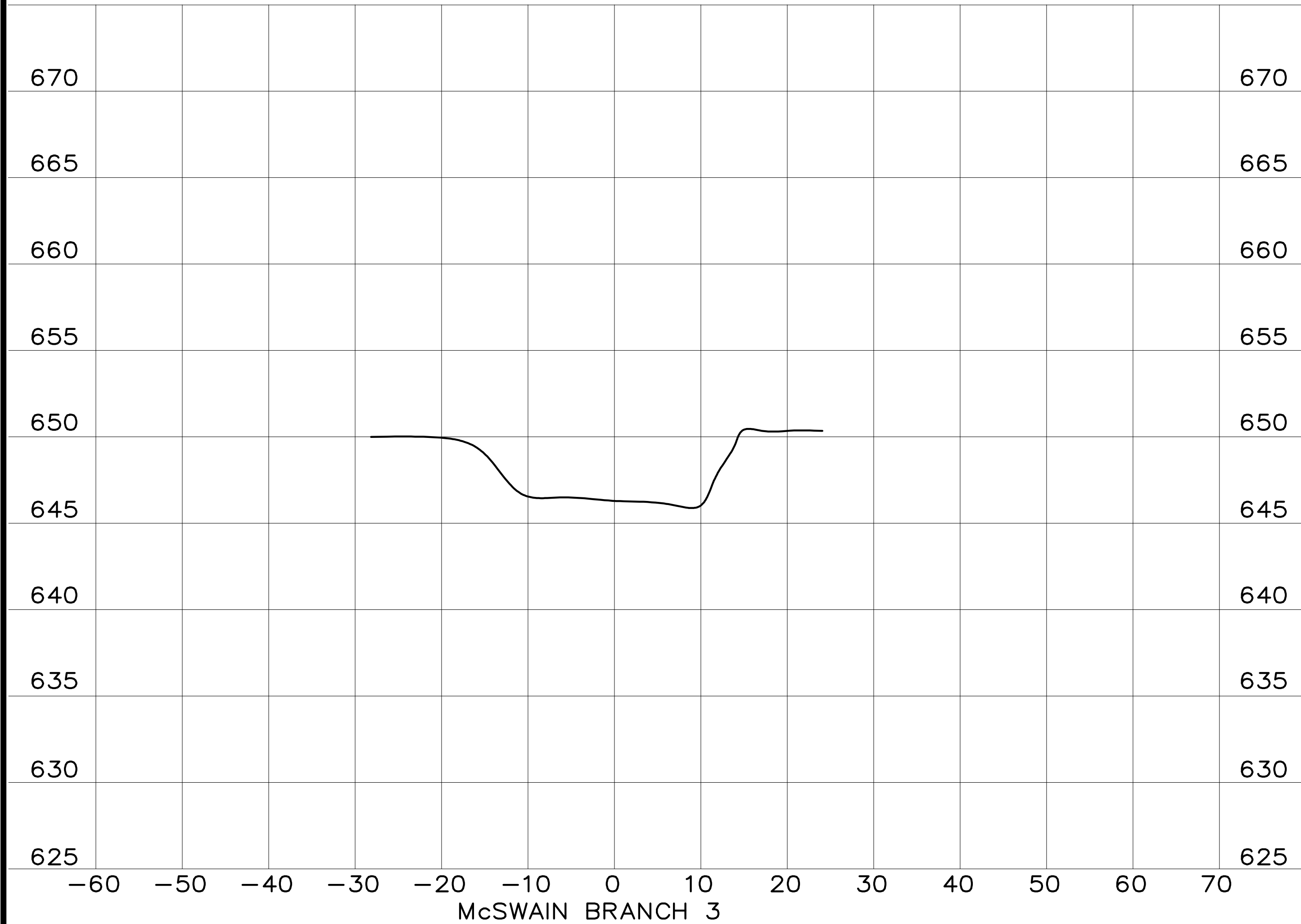
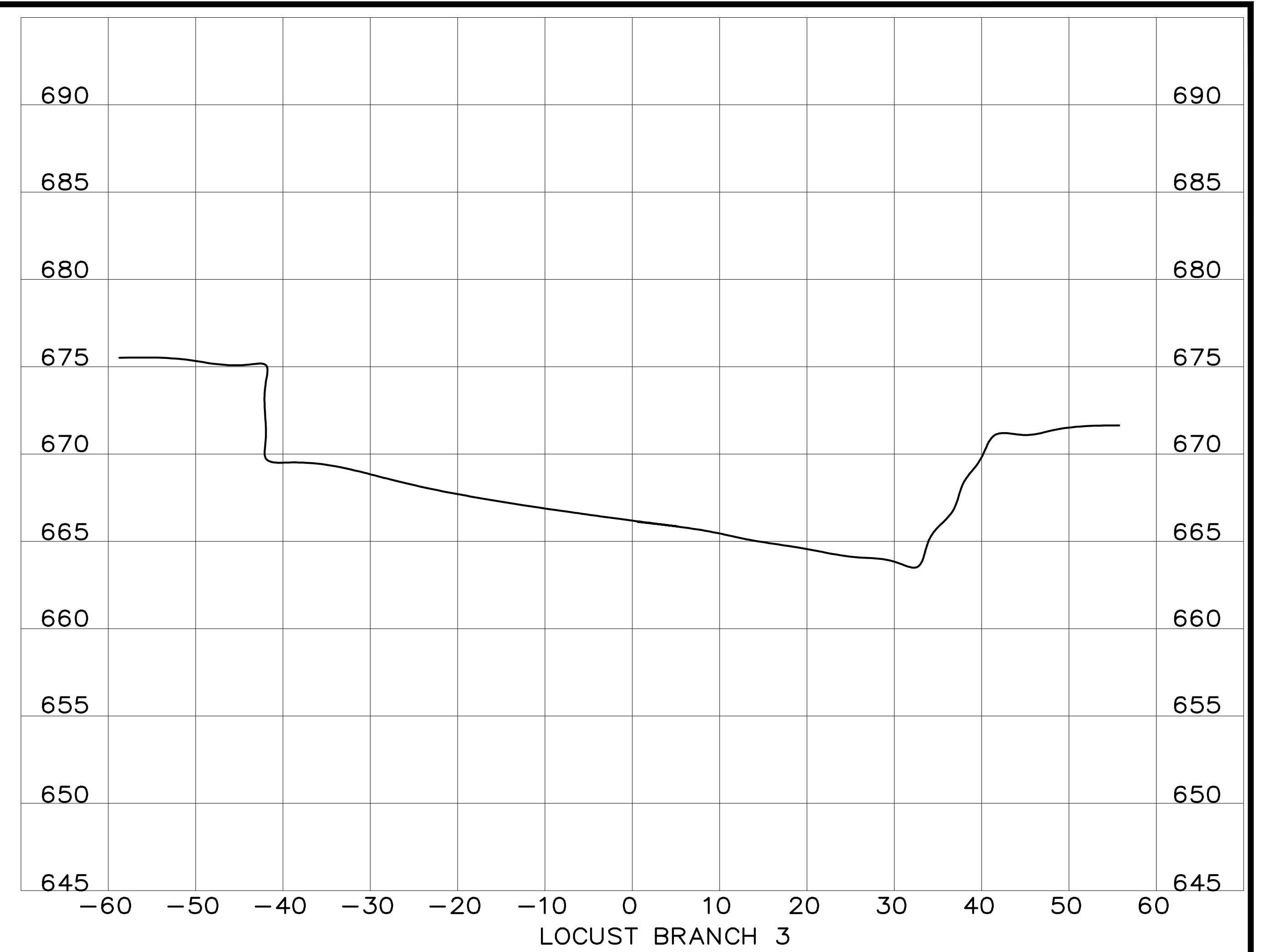
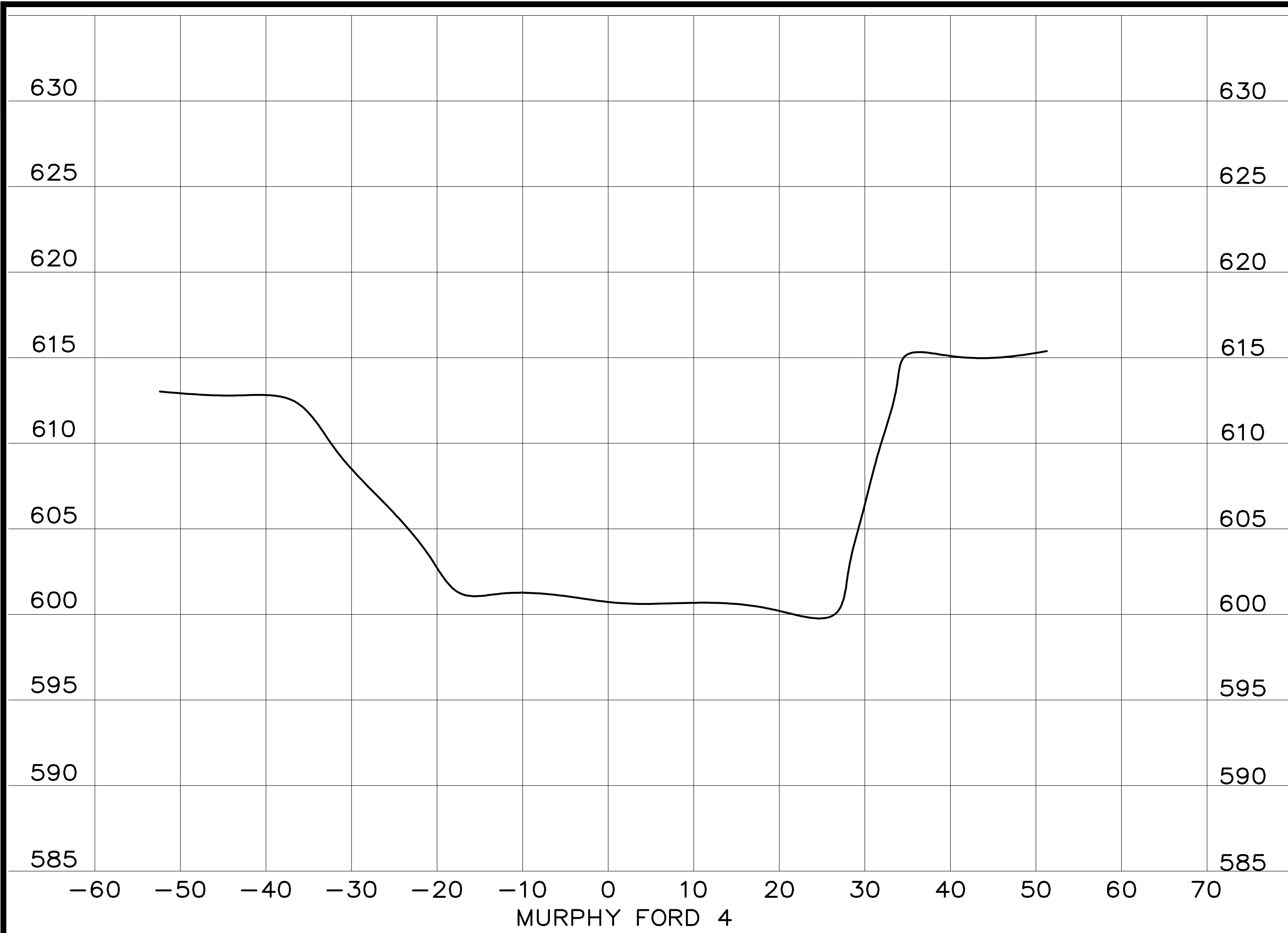


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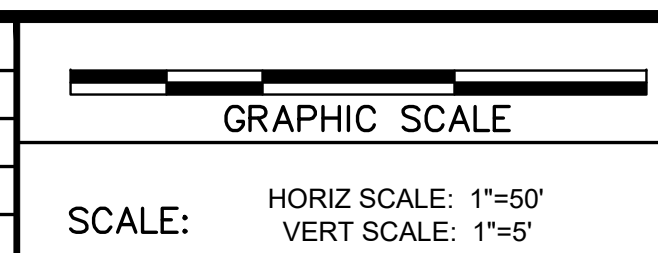
PHASE 11 SYSTEM IMPROVEMENTS
ESTILL COUNTY WATER DISTRICT #1
ESTILL COUNTY, KENTUCKY

STREAM CROSSINGS

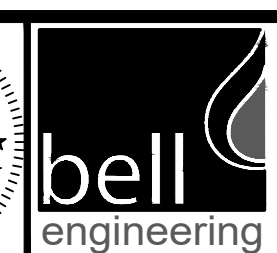
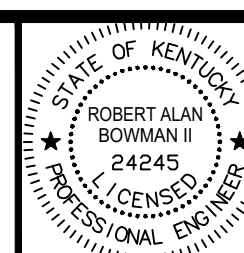
DIVISION	-
CONTRACT NO.	371-19-01
DATE	NOVEMBER 2019
SHEET NO.	2 OF 8



DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
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APPROVED	SHC			



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PHASE 11 SYSTEM IMPROVEMENTS
 ESTILL COUNTY WATER DISTRICT #1
 ESTILL COUNTY, KENTUCKY

CROSSING PROFILES

DIVISION	-
CONTRACT NO.	371-19-01
DATE	NOVEMBER 2019
SHEET NO.	3 OF 8

County: Estill County, Kentucky
Easement No. 4
Refer to Sheet No. E-4
Contract 371-19-01
Total Footage 289 ft.
Date June 2020

CENTERLINE DESCRIPTION

FOR

WATER MAIN EASEMENT

FROM: Carolyn and Emerson Mcafee 1357 Red Lick Road Berea, KY 40403
(Name of Property Owner) (Address of Property Owner)

Beginning at a point in the Carolyn and Emerson Mcafee and West right-of-way of Kiskey Branch Road property line, said point being 347 feet, more or less, measured in a northerly direction along said property line from the Carolyn and Emerson Mcafee and Herbert Harrison property corner, said corner being in the West right-of-way of Kiskey Branch Road; thence, across the property of Carolyn and Emerson Mcafee, 60 feet, more or less, measured in a westerly direction to a point; thence 35 feet, more or less, measured in a westerly direction to a point; thence 48 feet, more or less, measured in a northwesterly direction to a point; thence 175 feet, more or less, measured in a northeasterly direction to a point; thence 30 feet, more or less, measured in an easterly direction to a point in the Carolyn and Emerson Mcafee property, said point being 538 feet, more or less, measured in a northwesterly direction along said property from the Carolyn and Emerson Mcafee and Herbert Harrison property corner, said corner being in the West right-of-way of Kiskey Branch Road.

The permanent easement shall be a strip of land 15 feet wide extending 7.5 feet on each side of the above described centerline.

The temporary construction easement shall be a strip of land 30 feet wide extending 15 feet on each side of the above described centerline.

Beginning at a point in the Carolyn and Emerson Mcafee and West right-of-way of Kissey Branch Road property line, said point being 347 feet, more or less, measured in a northerly direction along said property line from the Carolyn and Emerson Mcafee and Herbert Harrison property corner, said corner being in the West right-of-way of Kissey Branch Road; thence, across the property of Carolyn and Emerson Mcafee 123 feet, more or less, measured in a westerly direction to a point; thence, 20 feet, more or less, measured in a northwesterly direction to a point; thence 40 feet, more or less, measured in a northeasterly direction to a point; thence, 20 feet, more or less, measured in a southeasterly direction to a point; thence 40 feet, more or less, measured in a southwesterly direction to the point of beginning, being an 800 square foot area for use as a temporary construction easement for a directional bore pit.

This temporary construction easement shall be a strip of land 60 feet wide extending 30 feet on the right side and 30 feet on the left side of the above described centerline.

Beginning at a point in the Carolyn and Emerson Mcafee and West right-of-way of Kissey Branch Road property line, said point being 512 feet, more or less, measured in a northerly direction along said property line from the Carolyn and Emerson Mcafee and Herbert Harrison property corner, said corner being in the West right-of-way of Kissey Branch Road; thence, across the property of Carolyn and Emerson Mcafee 67 feet, more or less, measured in a westerly direction to a point; thence, 20 feet, more or less, measured in a northwesterly direction to a point; thence 40 feet, more or less, measured in a northeasterly direction to a point; thence, 20 feet, more or less, measured in a southeasterly direction to a point; thence 40 feet, more or less, measured in a southwesterly direction to the point of beginning, being an 800 square foot area for use as a temporary construction easement for a directional bore pit.

This temporary construction easement shall be a strip of land 60 feet wide extending 30 feet on the right side and 30 feet on the left side of the above described centerline.

Jeff Hix, PVA
130 Main Street
Courthouse, Room 104
Irvine, KY 40336
Office: 606-723-4569



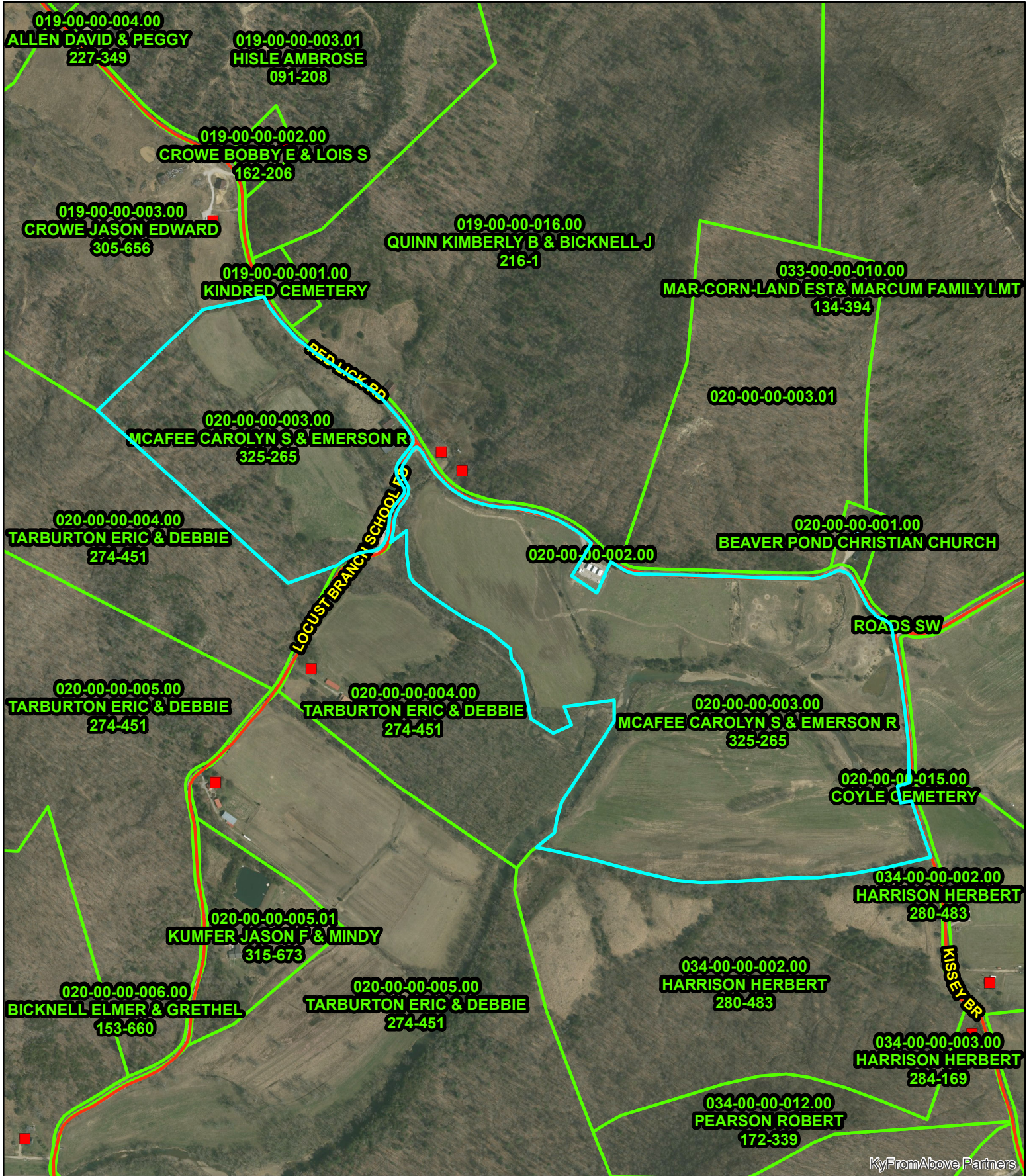
Estill County Property Valuation Administration

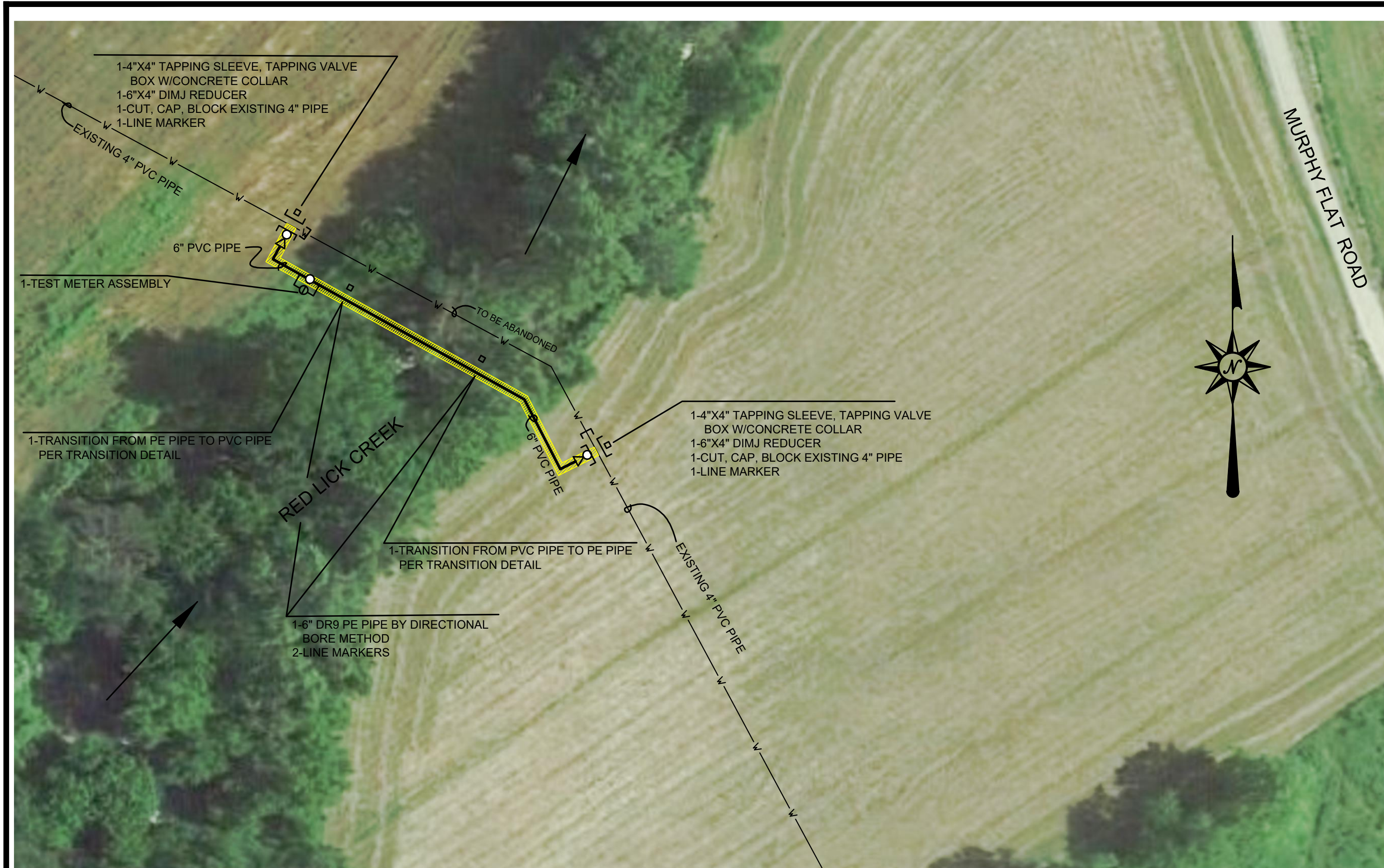
Date: June 15, 2020
Aerial Date: Summer 2016



Map to be used
for identification only,
NOT for conveyance

1 inch = 667 feet





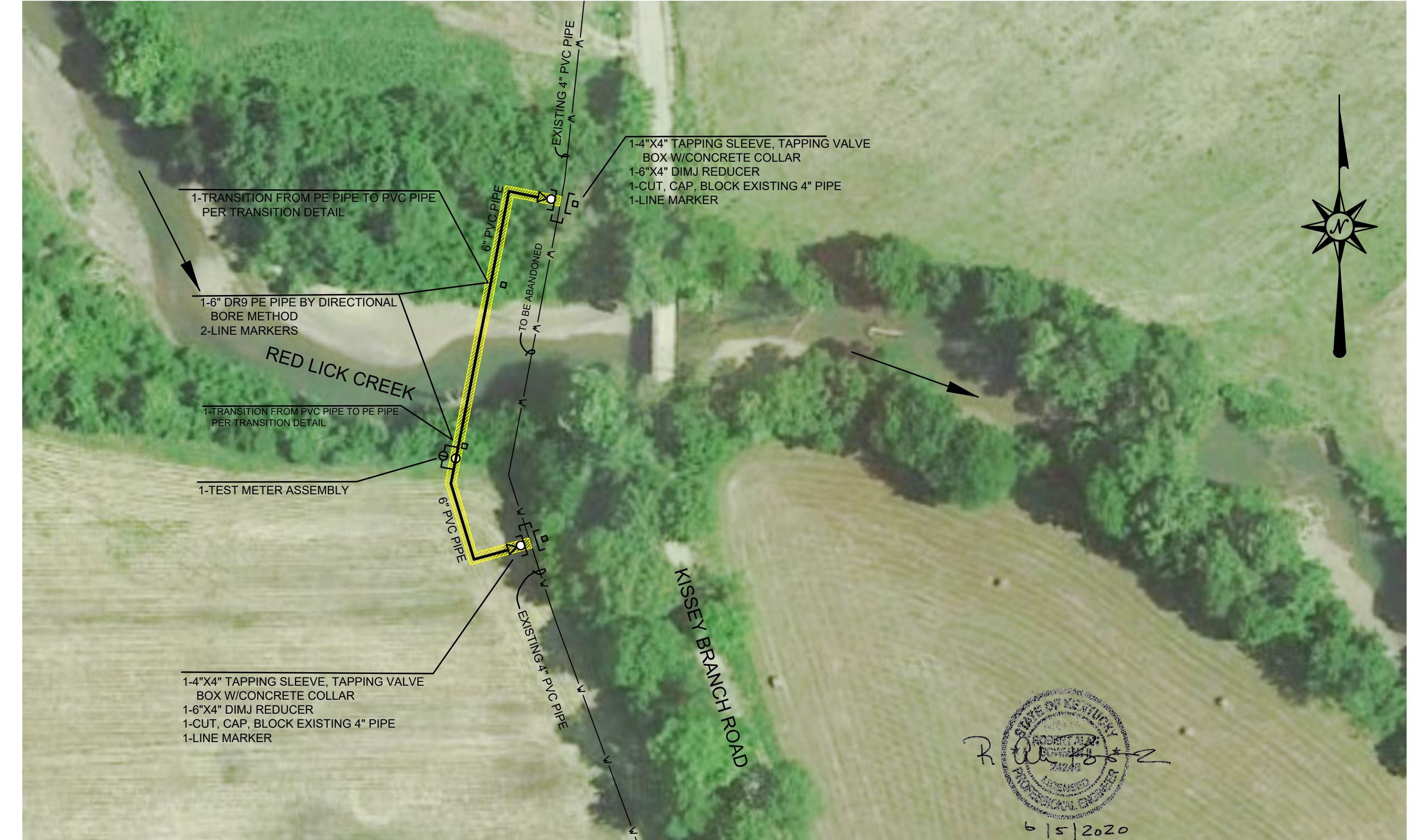
MURPHY FORD 4
SCALE: 1"=50'



McSWAIN BRANCH 3
SCALE: 1"=50'

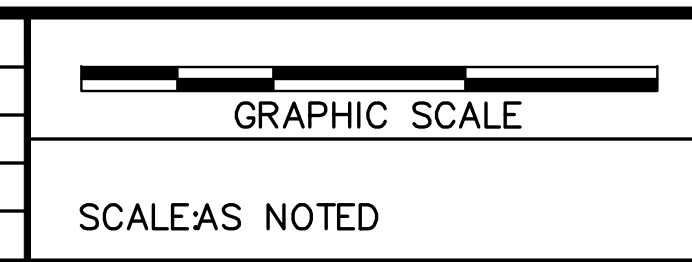


LOCUST BRANCH 3
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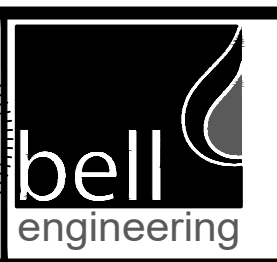
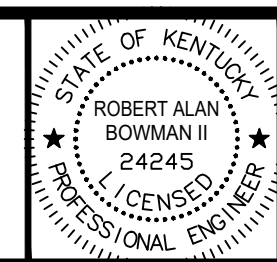


KISSEY BRANCH
SCALE: 1"=50'

DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
CHECKED	RAB			
APPROVED	SHC			



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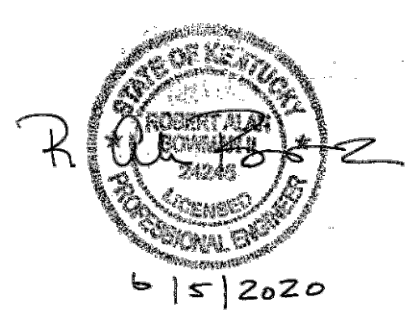
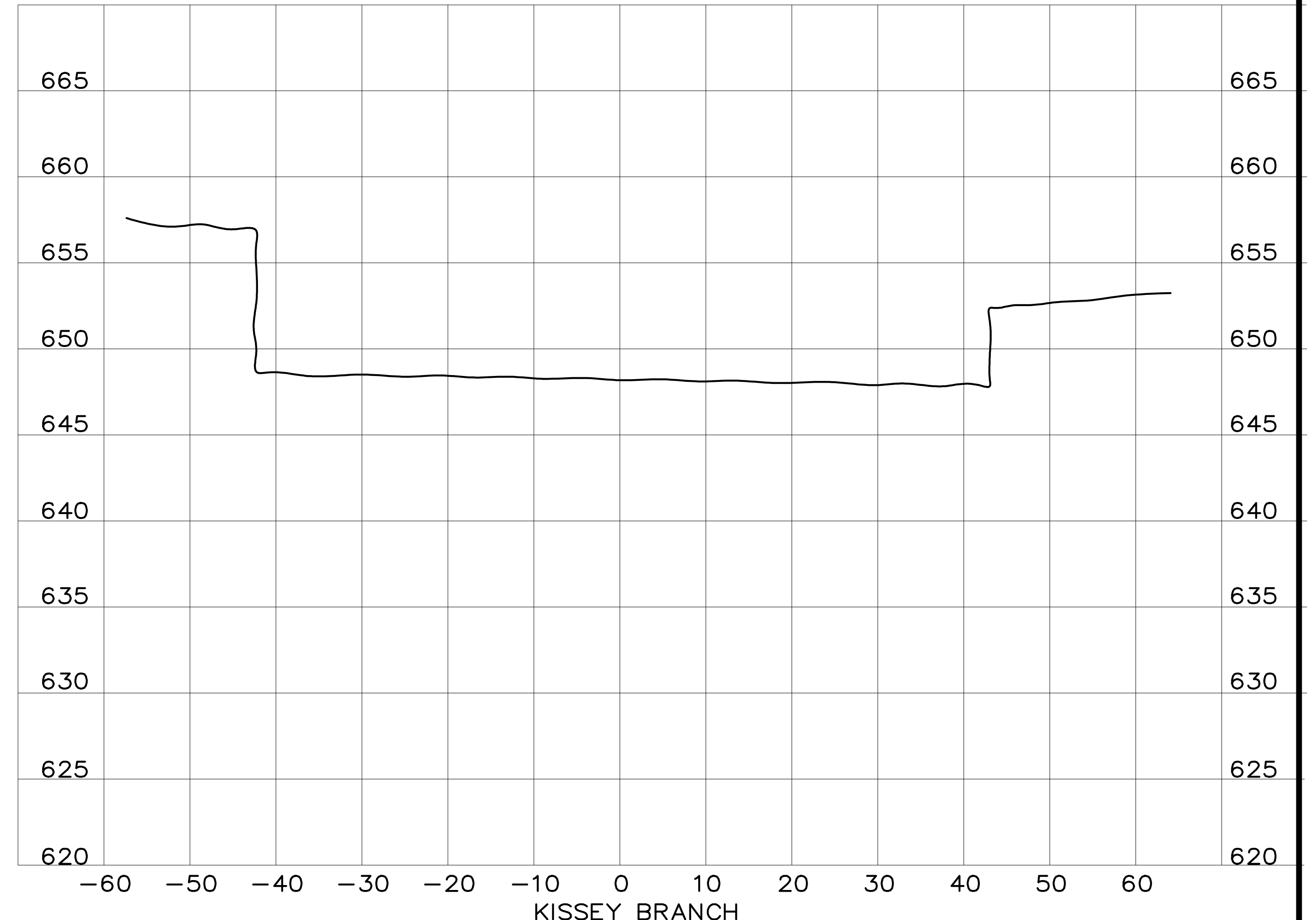
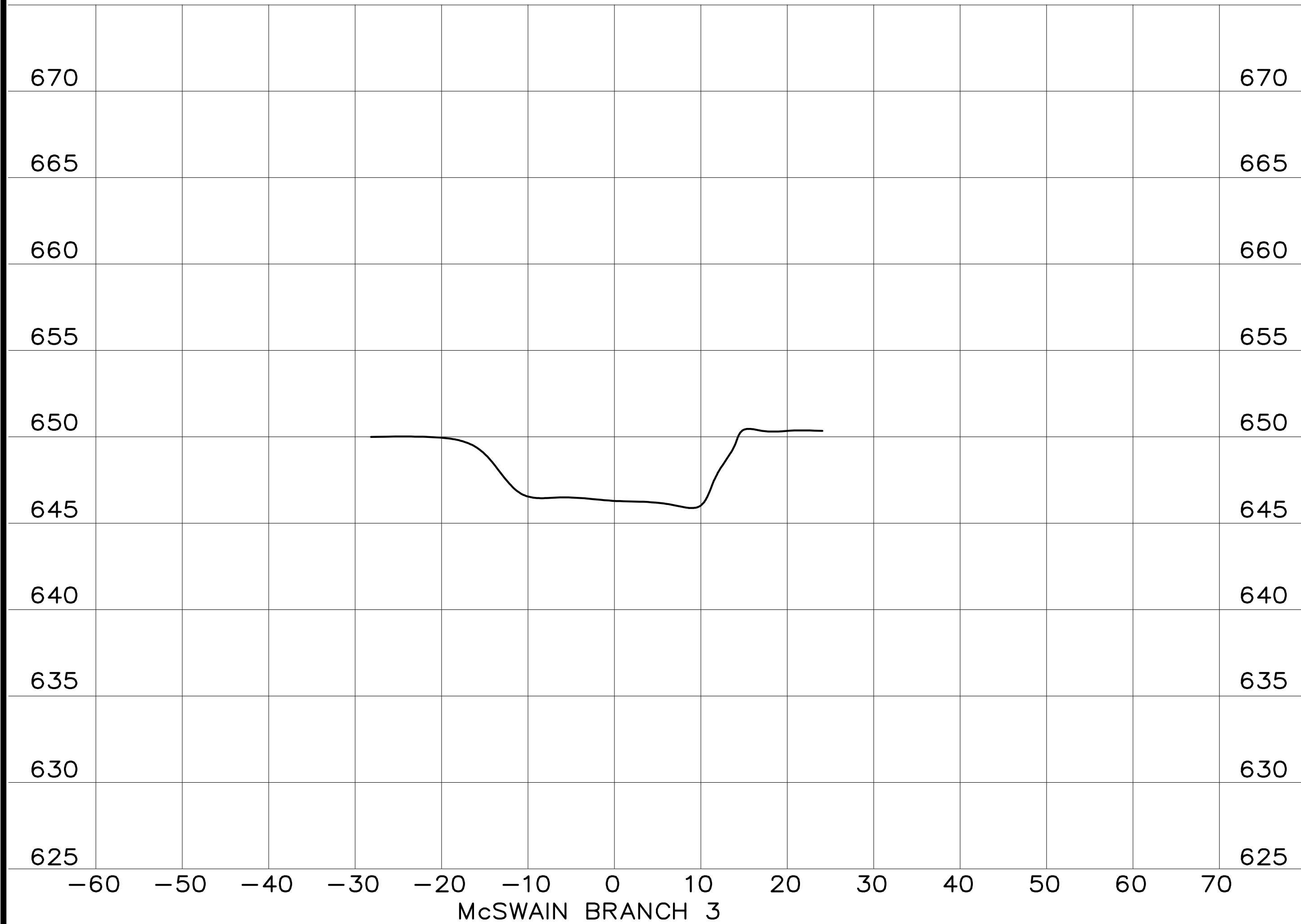
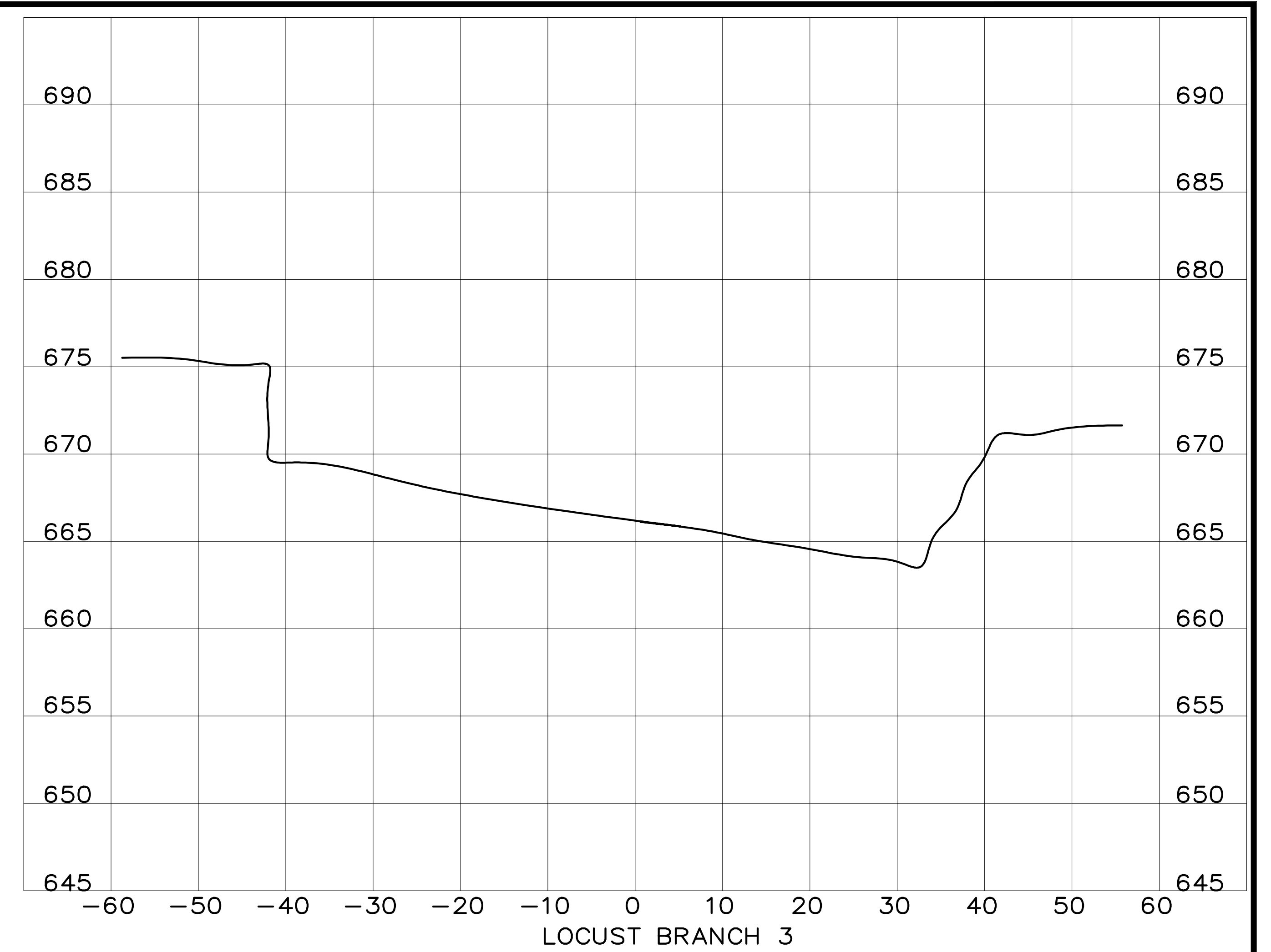
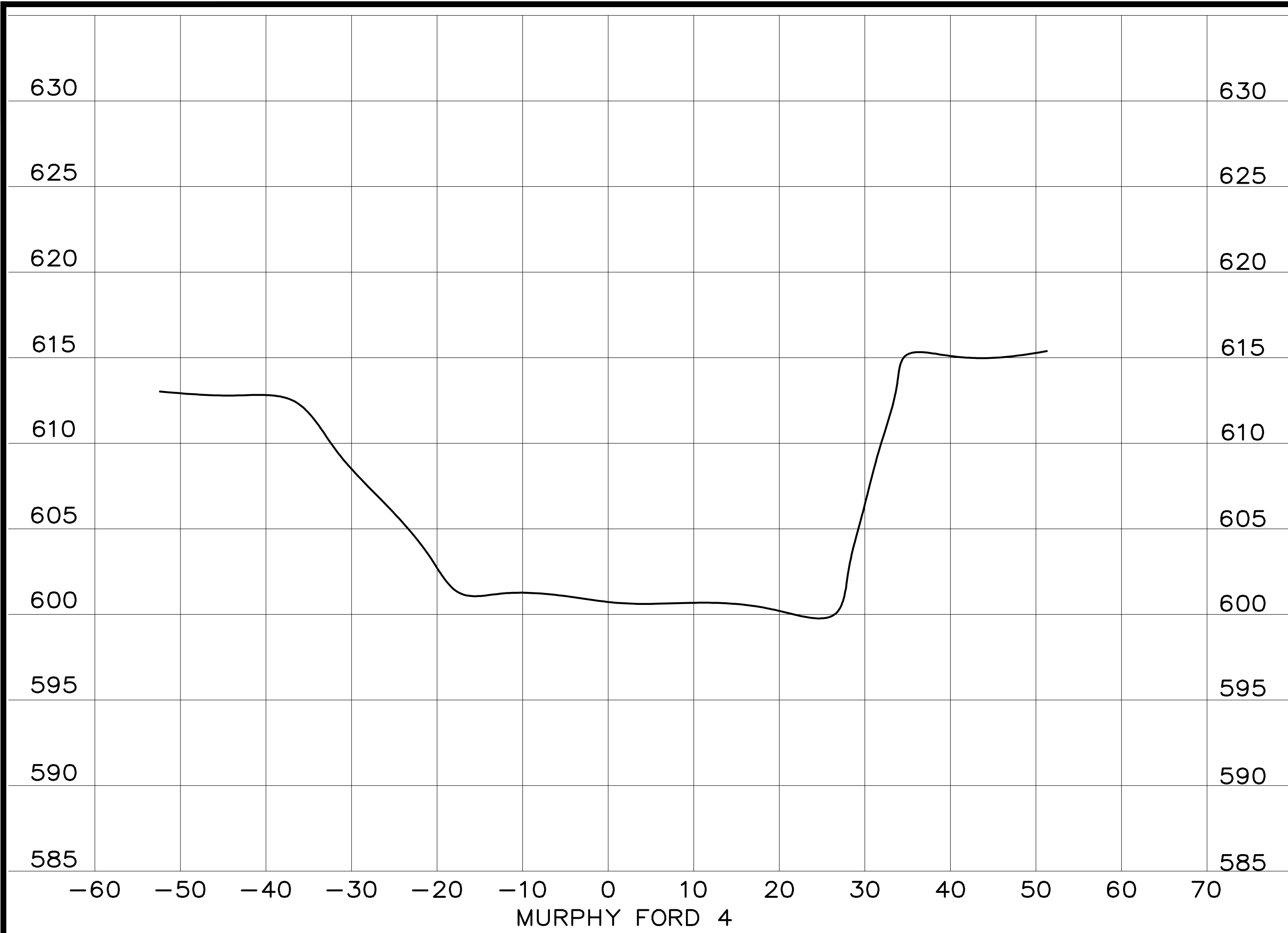


Lexington, KY (859) 278-5412
Hopkinsville, KY (270) 886-5466
Asheville, NC (828) 774-5499

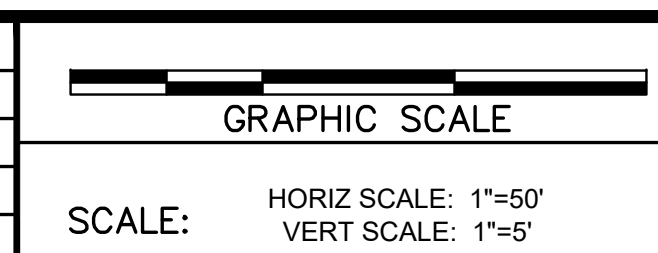
PHASE 11 SYSTEM IMPROVEMENTS
ESTILL COUNTY WATER DISTRICT #1
ESTILL COUNTY, KENTUCKY

DIVISION -
CONTRACT NO. 371-19-01
DATE NOVEMBER 2019
SHEET NO. 2 OF 8

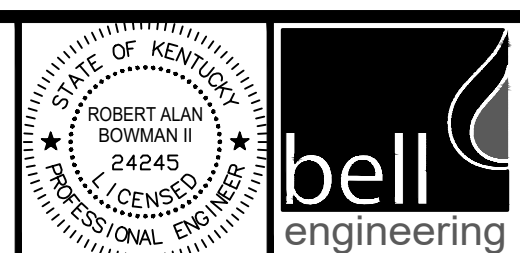
6/15/2020



DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
CHECKED	RAB			
APPROVED	SHC			



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PHASE 11 SYSTEM IMPROVEMENTS
ESTILL COUNTY WATER DISTRICT #1
ESTILL COUNTY, KENTUCKY

CROSSING PROFILES

DIVISION	-
CONTRACT NO.	371-19-01
DATE	NOVEMBER 2019
SHEET NO.	3 OF 8

County: Estill County, Kentucky
Easement No. 5
Refer to Sheet No. E-3
Contract 371-19-01
Total Footage 276 ft.
Date June 2020

CENTERLINE DESCRIPTION

FOR

WATER MAIN EASEMENT

FROM: Carolyn and Emerson McAfee 1357 Red Lick Road Berea, KY 40403
(Name of Property Owner) (Address of Property Owner)

Beginning at a point in the Carolyn and Emerson McAfee and East right-of-way of Locust Branch School Road property line, said point being 235 feet, more or less, measured in a northerly direction along said property line from the Carolyn and Emerson McAfee and Eric and Debbie Tarburton property corner, said corner being in the East right-of-way of Locust Branch School Road; thence, across the property of Carolyn and Emerson McAfee, 26 feet, more or less, measured in an easterly direction to a point; thence 30 feet, more or less, measured in an easterly direction to a point; thence 60 feet, more or less, measured in a southerly direction to a point; thence 120 feet, more or less, measured in a southwesterly direction to a point; thence 40 feet, more or less, measured in a southerly direction to a point; thence 25 feet, more or less, measured in a westerly direction to a point in the Carolyn and Emerson McAfee property, said point being 23 feet, more or less, measured in a southwesterly direction along said property from the Carolyn and Emerson McAfee and Eric and Debbie Tarburton property corner, said corner being in the East right-of-way of Locust Branch School Road.

The permanent easement shall be a strip of land 15 feet wide extending 7.5 feet on each side of the above described centerline.

The temporary construction easement shall be a strip of land 30 feet wide extending 15 feet on each side of the above described centerline.

Beginning at a point in the Carolyn and Emerson McAfee and East right-of-way of Locust Branch School Road property line, said point being 235 feet, more or less, measured in a northerly direction along said property line from the Carolyn and Emerson McAfee and Eric and Debbie Tarburton property corner, said corner being in the East right-of-way of Locust Branch School Road; thence, across the property of Carolyn and Emerson McAfee 64 feet, more or less, measured in a southeasterly direction to a point; thence, 40 feet, more or less, measured in a southerly direction to a point; thence 20 feet, more or less, measured in a westerly direction to a point; thence, 40 feet, more or less, measured in a northerly direction to a point; thence 20 feet, more or less, measured in an easterly direction to the point of beginning, being an 800 square foot area for use as a temporary construction easement for a directional bore pit.

This temporary construction easement shall be a strip of land 60 feet wide extending 30 feet on the right side and 30 feet on the left side of the above described centerline.

Beginning at a point in the Carolyn and Emerson McAfee and East right-of-way of Locust Branch School Road property line, said point being 68 feet, more or less, measured in a northerly direction along said property line from the Carolyn and Emerson McAfee and Eric and Debbie Tarburton property corner, said corner being in the East right-of-way of Locust Branch School Road; thence, across the property of Carolyn and Emerson McAfee 23 feet, more or less, measured in an easterly direction to a point; thence, 40 feet, more or less, measured in a southerly direction to a point; thence 20 feet, more or less, measured in an easterly direction to a point; thence, 40 feet, more or less, measured in a northerly direction to a point; thence 20 feet, more or less, measured in a westerly direction to the point of beginning, being an 800 square foot area for use as a temporary construction easement for a directional bore pit.

This temporary construction easement shall be a strip of land 60 feet wide extending 30 feet on the right side and 30 feet on the left side of the above described centerline.

Jeff Hix, PVA
130 Main Street
Courthouse, Room 104
Irvine, KY 40336
Office: 606-723-4569



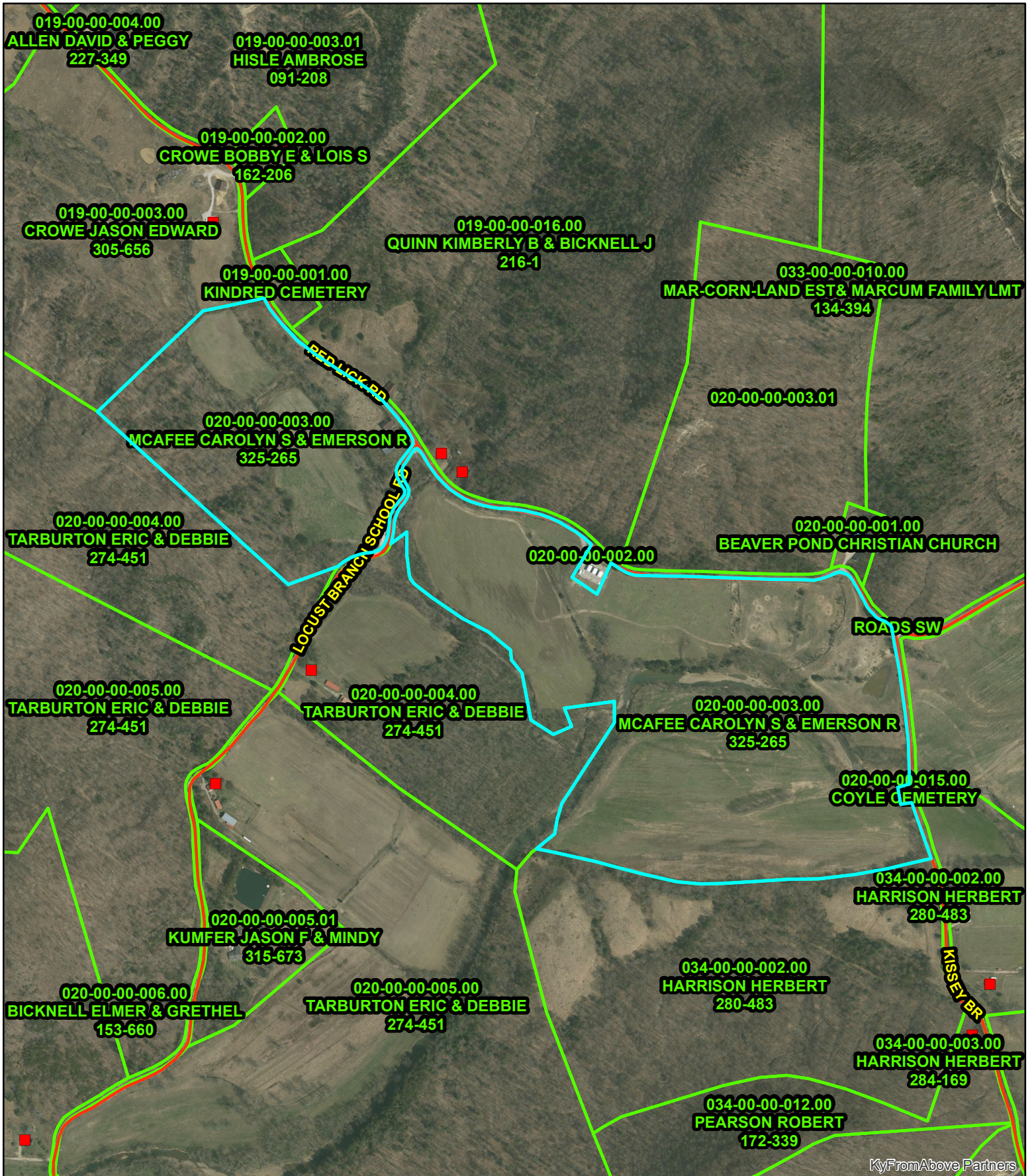
Estill County Property Valuation Administration

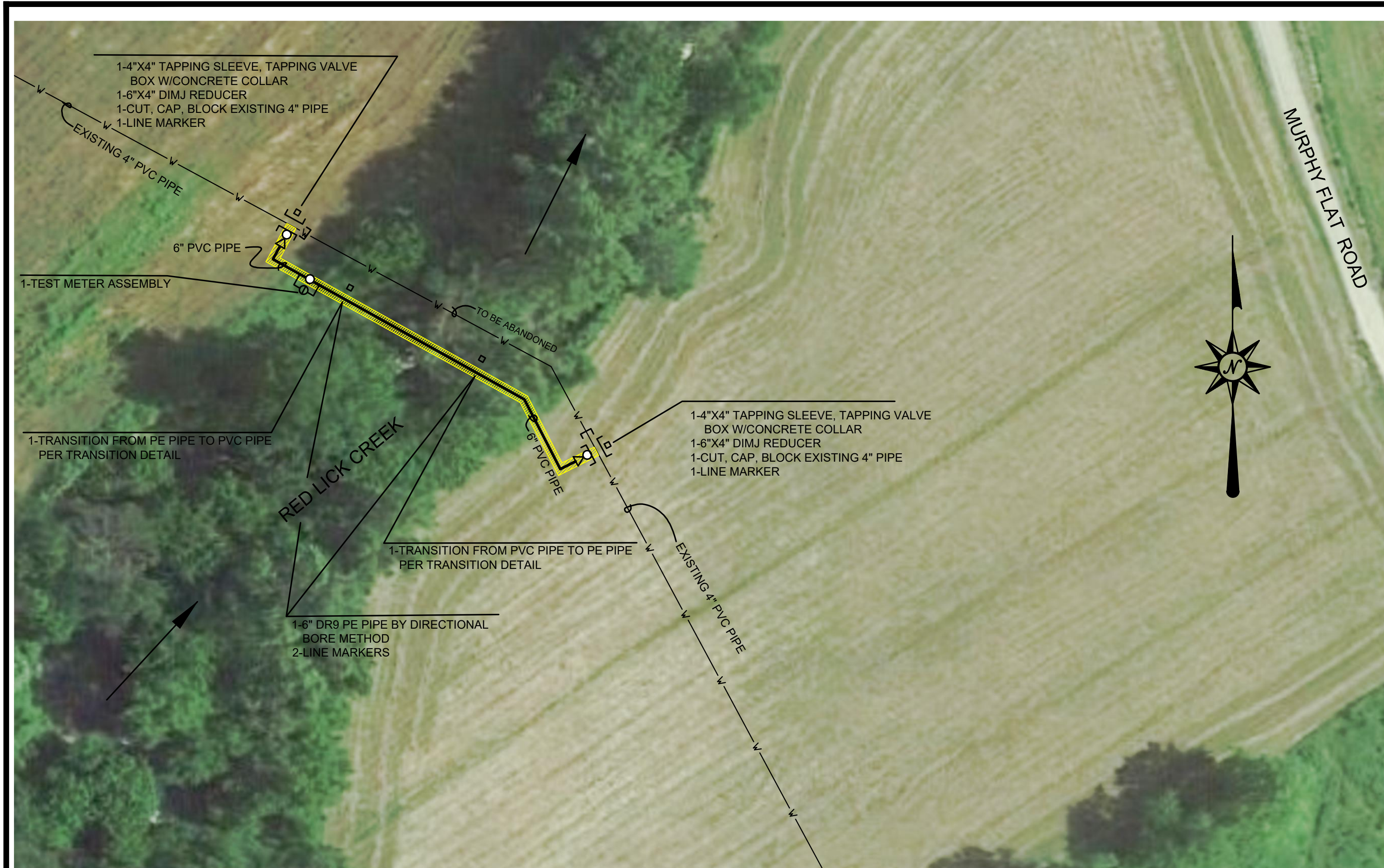
Date: June 15, 2020
Aerial Date: Summer 2016



Map to be used
for identification only,
NOT for conveyance

1 inch = 667 feet

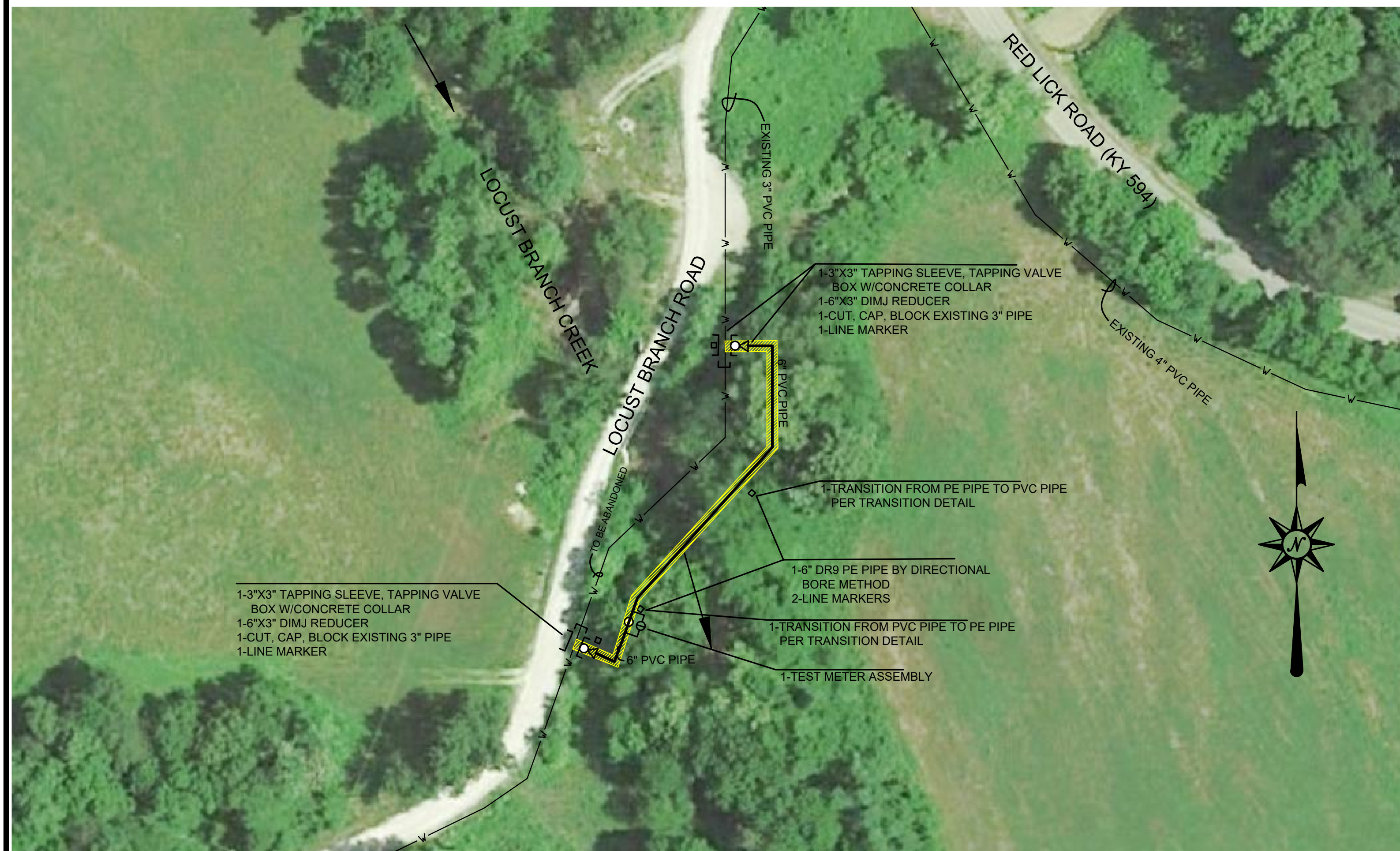




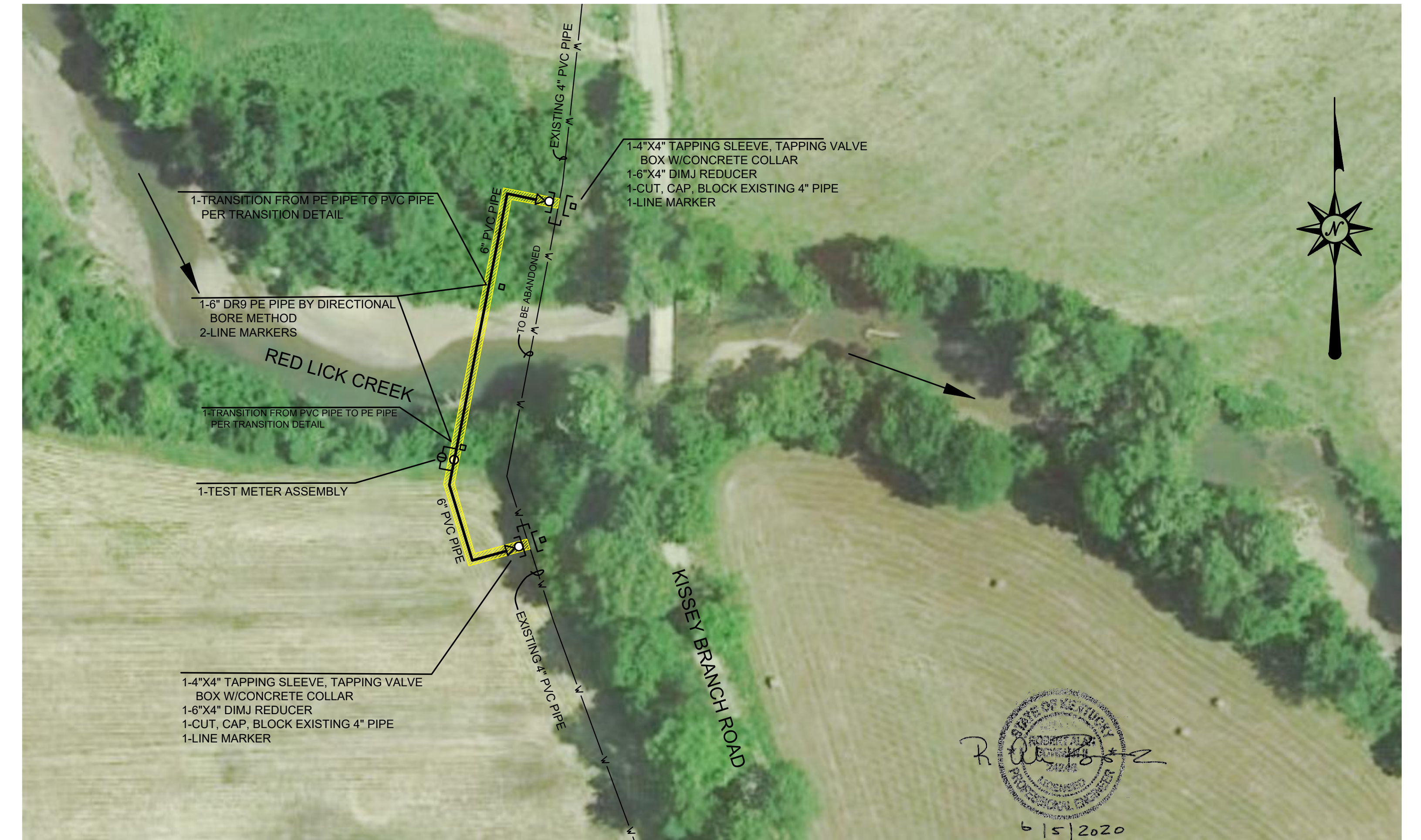
MURPHY FORD 4
SCALE: 1"=50'



McSWAIN BRANCH 3
SCALE: 1"=50'

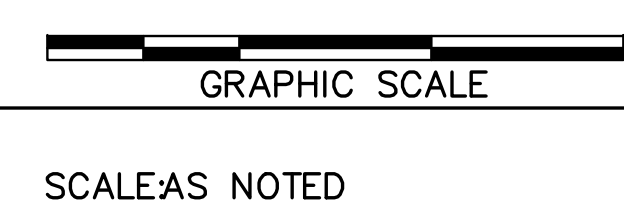


LOCUST BRANCH 3
SCALE: 1"=50'

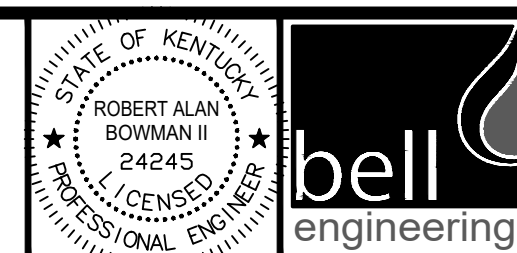


KISSEY BRANCH
SCALE: 1"=50'

DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
CHECKED	RAB			
APPROVED	SHC			



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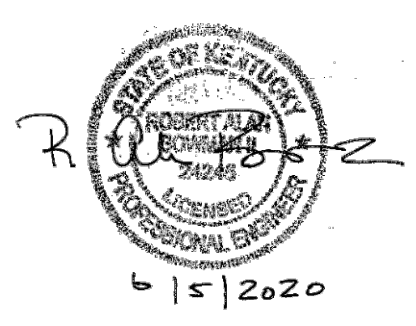
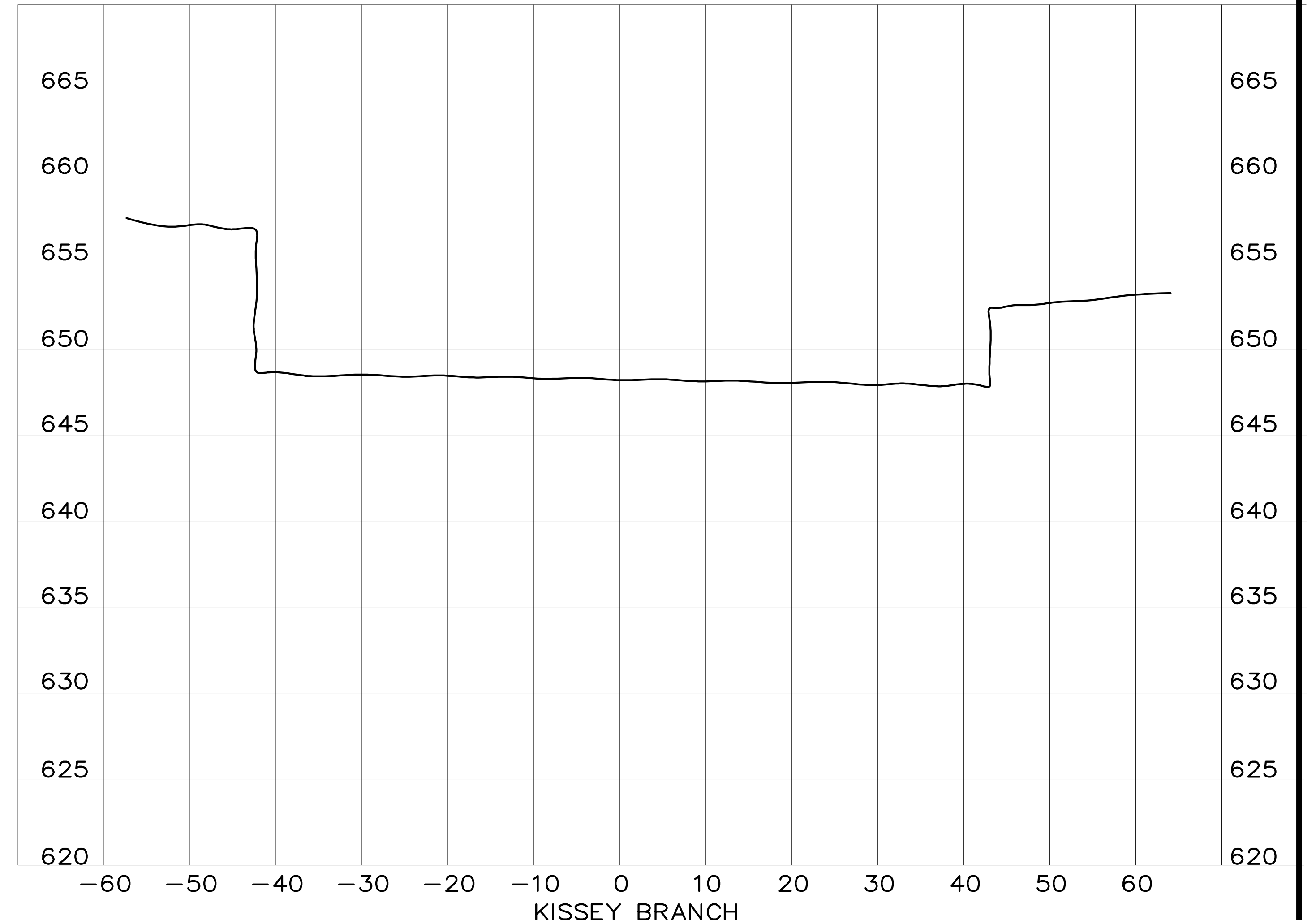
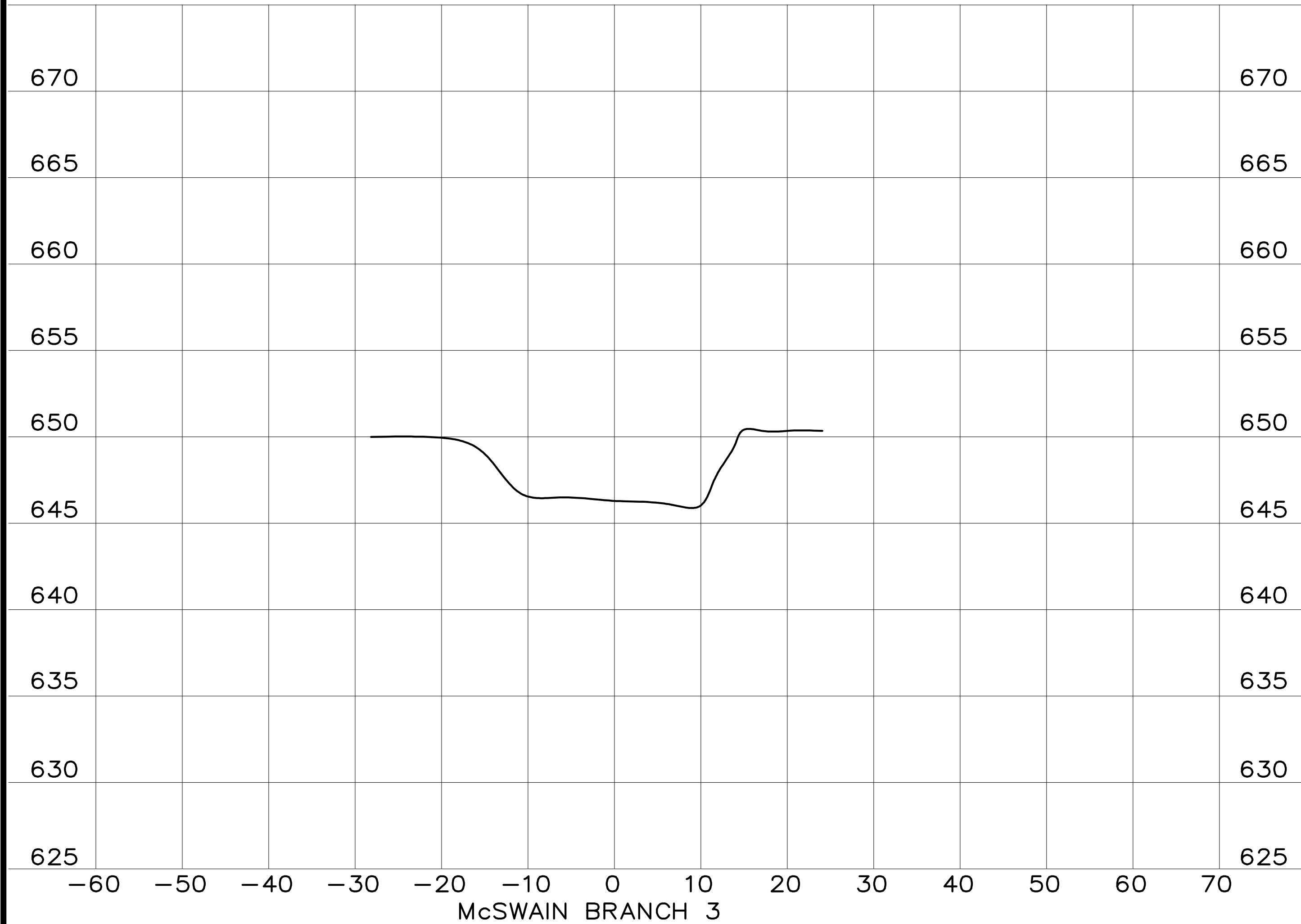
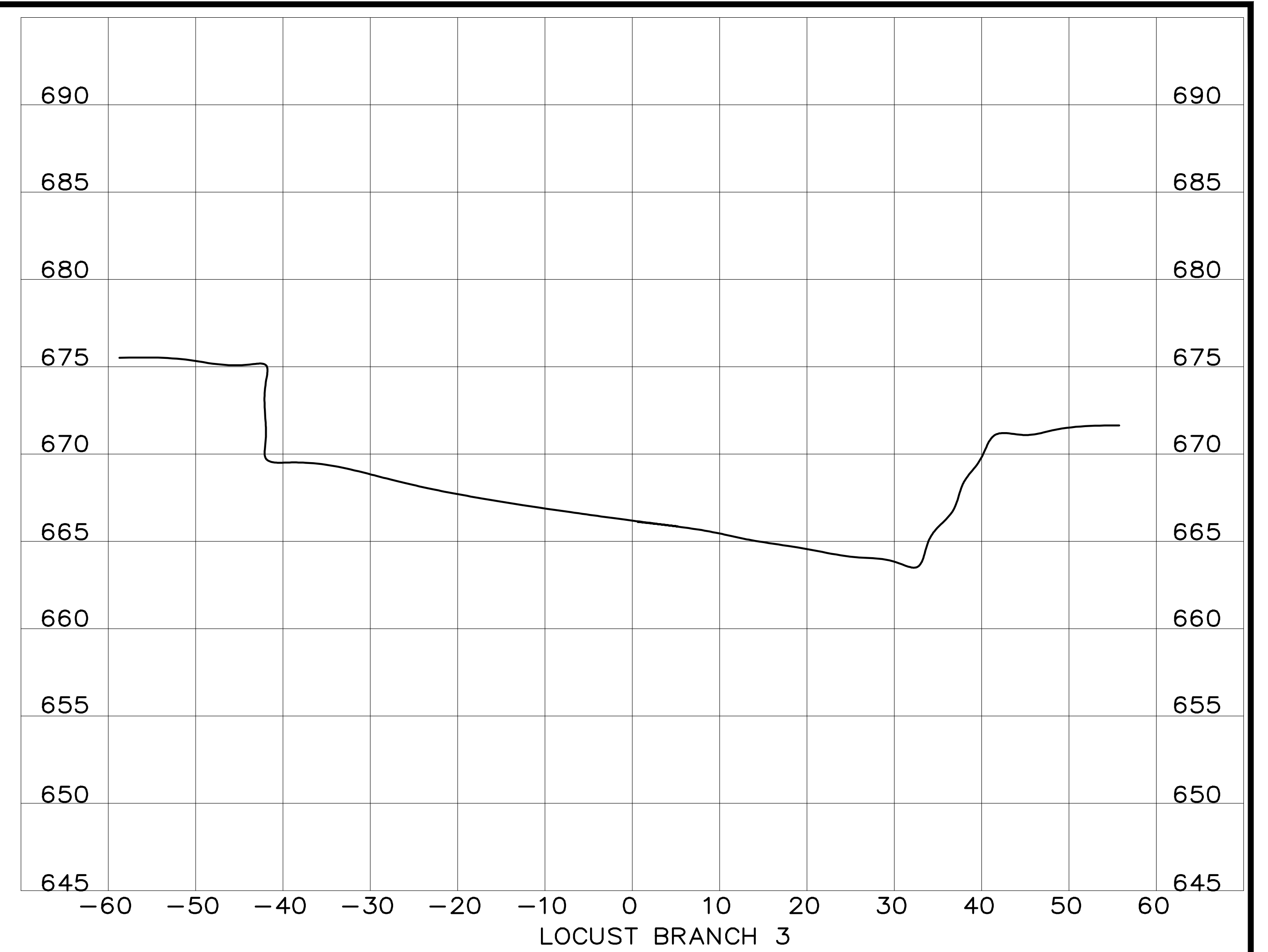
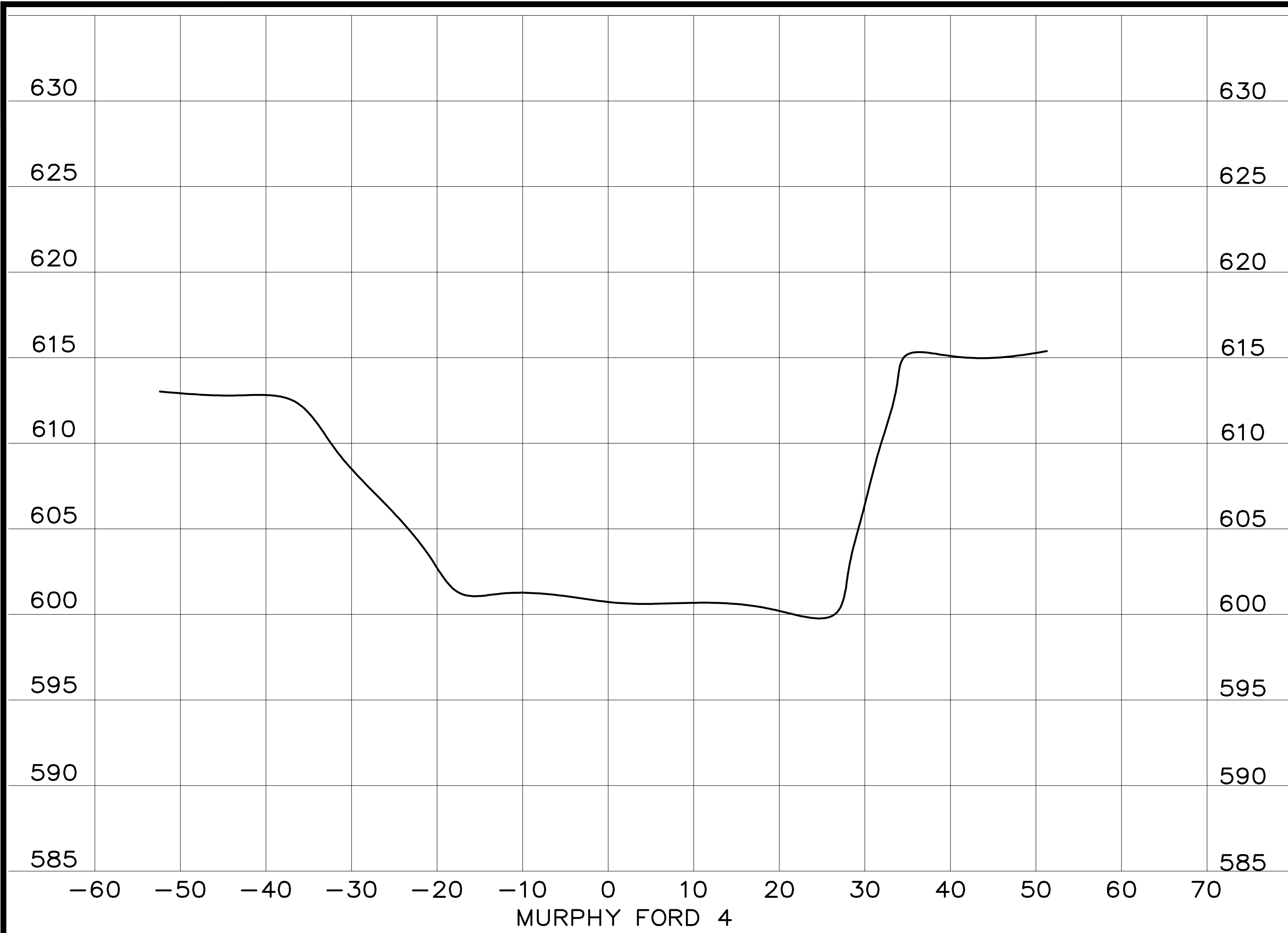


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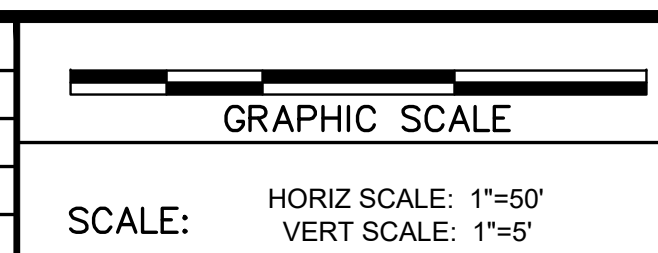
PHASE 11 SYSTEM IMPROVEMENTS
ESTILL COUNTY WATER DISTRICT #1
ESTILL COUNTY, KENTUCKY

STREAM CROSSINGS

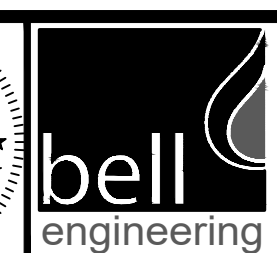
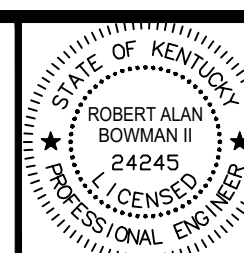
DIVISION	-
CONTRACT NO.	371-19-01
DATE	NOVEMBER 2019
SHEET NO.	2 OF 8



DESIGNER	RAB	DATE	BY	REVISION
DRAWN	DMB			
CHECKED	RAB			
APPROVED	SHC			



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PHASE 11 SYSTEM IMPROVEMENTS
 ESTILL COUNTY WATER DISTRICT #1
 ESTILL COUNTY, KENTUCKY

CROSSING PROFILES

DIVISION	-
CONTRACT NO.	371-19-01
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SHEET NO.	3 OF 8

EXHIBIT 21



Lexington, KY | 859.278.5412
 Hopkinsville, KY | 270.886.5466
 Asheville, NC | 828.774.5499

OPINION OF PROBABLE PROJECT COST

Project: Phase 11 - Water System Improvements **Client:** ECWD
Date: January 2021 **Contract No.:**
Est. By: RAB **Checked By:** RAB

No Design Completed
 Preliminary
 Final Design

SHEET: 1 **OF:** 1 **Drawing No.:** N/A

ITEM NO.	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR		TOTAL COST
		NO.	UNIT	PER UNIT	TOTAL	PER UNIT	TOTAL	
1	Swartz Contracting as Bid							\$744,420
TOTAL OPINION OF PROBABLE CONSTRUCTION COST								\$744,420

PROJECT COST

1	ENGINEERING - DESIGN (USDA RD CURVE)							
	Design Fee							\$49,000
	Bidding Fee							\$7,000
	Construction Administration Fee							\$13,000
2	ENGINEERING - RPR (USDA RD CURVE)							\$47,000
3	ADMINISTRATIVE							\$40,000
4	LEGAL							\$30,000
5	ELECTRICAL ENGINEERING							\$15,000
6	CONTINGENCY							\$75,000
TOTAL PROJECT COST								\$1,020,420

EXHIBIT 22

Statement of Annual Cost of Facilities

Estill District does not expect any additional costs to operate the proposed facilities. The proposed facilities are estimated to reduce annual water loss by 2,453,141 gallons. Estill District currently purchases water from Irvine Municipal Utilities at the rate of \$3.254 per 1,000 gallons. The reduction in water loss will produce annual savings of \$7,982.53 (2,453,141 gallons x \$3.254 per 1,000 gallons). *See Comprehensive Corrective Action Plan at 59.*

EXHIBIT 23



KENTUCKY INFRASTRUCTURE AUTHORITY

Matthew G. Bevin
Governor

100 Airport Road
Frankfort, Kentucky 40601
(502) 573-0260
(502) 696-0676 (fax)
kia.ky.gov

Donna McNeil
Executive Director

December 6, 2019

The Honorable Blain Click, Chairman
Estill County Water District #1
76 Cedar Grove Road
Irvine, KY 40336

KENTUCKY INFRASTRUCTURE AUTHORITY FEDERALLY ASSISTED DRINKING WATER REVOLVING LOAN FUND CONDITIONAL COMMITMENT LETTER (F20-013)

Dear Chairman Click:

The Kentucky Infrastructure Authority (“the Authority”) commends your efforts to improve public service facilities in your community. On December 5, 2019, the Authority approved your loan for the System Improvements and Meter Replacement Project subject to the conditions stated below. The total cost of the project shall not exceed \$2,899,450 without prior authorization of the Authority, of which the Authority loan shall provide 2,399,450 of the funding. Other anticipated funding for the project is reflected in Attachment B. The final loan amount will be equal to the Authority’s portion of estimated project cost applied to the actual project cost. Attachment B incorporated herein by reference fully describes the project.

An Assistance Agreement will be executed between the Authority and “Estill County Water District #1” upon satisfactory performance of the conditions set forth in this letter. You must meet the conditions set forth in this letter and enter into an Assistance Agreement by December 5, 2020 (twelve months from the date of this letter). A one-time extension of up to six months may be granted for applicants that experience extenuating circumstances. Funds will be available for disbursement only after execution of the Assistance Agreement.

Chairman Click
December 6, 2019
Page 2

Please inform the Authority of any changes in your financing plan as soon as possible. We wish you every success for this project which will benefit both your community and the Commonwealth as a whole.

Sincerely,



Linda Bridwell, PE
Deputy Executive Director
Kentucky Infrastructure Authority

Attachments

cc: Karyn Leverenz, Bluegrass Area Development District
Bell Engineering, Robert Alan Bowman

Please sign and return a copy of this letter indicating your acceptance of this commitment and its terms along with the completed "Transparency Act Reporting Information Form". Complete the attached "Authorization for Electronic Deposit of Vendor Payment Form" and the "ACH Debit Authorization Form" **and return to the US Bank address at the bottom of each form**. Also included are the "Legal Counsel Certification Letter" sample and the "Statement of Approval of Projections of Revenue and Expenses" for you to complete at the appropriate time.

We have attached an SRF loan checklist to use as a guide.

Accepted

Date

The Assistance Agreement and this commitment shall be subject, but not limited to, the following terms:

1. The Authority project loan shall not exceed \$2,399,450 without prior authorization.
2. Principal forgiveness of 50.0% of the assistance amount, not to exceed \$1,000,000 will be credited to the loan balance upon release of liens on all contracts and disbursement of the final draw request by KIA to the borrower.
3. The loan shall bear interest at the rate of .50% per annum commencing with the first draw of funds.
4. Interest shall be payable on the unforgiven amount of actual funds received. The first payment shall be due on June 1, or December 1, immediately succeeding the date of the initial draw of funds, provided that if such June 1, or December 1, shall be less than three months since the date of the initial draw of funds, then the first interest payment date shall be the June 1, or December 1, which is at least six months from the date of the initial draw of funds. Interest payments will be due each six months thereafter until the loan is repaid. KIA requires the use of Automated Clearing House (ACH) debits for payment of all balances due on the loan. This will ensure that payments are credited timely to your account without the risk of incurring late payment fees. If the due date falls on a weekend or holiday your account will be debited on the next business day. Please complete and return the attached authorization form to U.S. Bank for processing.
5. Full principal payments will commence on the appropriate June 1, or December 1, within twelve months from initiation of operation. Full payments will be due each six months thereafter until the loan is repaid.
6. The loan shall be repaid over a period not to exceed 30 years from the date of initiation of operation for the project.
7. A loan servicing fee of 0.25% of the outstanding loan balance shall be payable to the Authority as a part of each interest payment.
8. Loan funds will only be disbursed after execution of the Assistance Agreement as project costs are incurred.
9. The Authority loan funds must be expended within six months of the official date of initiation of operation.

10. Fund "F" loan funds may be considered to be federal funds. OMB Circular A-133, "Audits of States, Local Governments and Non-Profit Organizations," requires that all recipients and sub-recipients expending \$750,000 or more in a year in federal awards must have a single or program-specific audit conducted for that year in accordance with the Circular. If the federal amount expended plus all other federal funds expended exceeds the threshold, you are required to arrange for an A-133 audit to be performed by an independent, licensed CPA, or in special cases, the Auditor of Public Accounts of the Commonwealth of Kentucky. Please note that the guidance for single audit requirements has changed for fiscal or calendar year 2016 audits. Please consult with your independent auditor as soon as possible to understand how the changes will affect you.
11. The Authority requires that an annual financial audit be provided for the life of the loan.
12. The final Assistance Agreement must be approved by ordinance or resolution, as applicable, of the city council or appropriate governing board.
13. The Borrower must maintain a 1.1 debt coverage ratio throughout the life of the KIA loan. All borrowers are subject to at least an annual financial review for compliance.

The following is a list of the standard conditions to be satisfied prior to execution of the Assistance Agreement or incorporated in the Assistance Agreement. Any required documentation must be submitted to the party designated.

1. The Authority to Award (bid) package must be submitted to the Division of Water for approval within 14 days of bid opening.
2. The Assistance Agreement must be executed within six (6) months from bid opening.
3. Documentation of final funding commitments from all parties other than the Authority as reflected in the credit analysis shall be provided prior to preparation of the Assistance Agreement and disbursement of the loan monies. Rejections of any anticipated project funding shall be immediately reported and may cause this loan to be subject to further consideration.

4. The loan must undergo review by the Capital Projects and Bond Oversight Committee of the Kentucky Legislature prior to the State's execution of the Assistance Agreement. The committee meets monthly on the third Tuesday. Any special conditions listed in Attachment B must be satisfied before the project is presented before the Committee.
5. Any required adjustment in utility service rates shall be adopted by ordinance, municipal order or resolution by the appropriate governing body of the Borrower. Public hearings as required by law shall be held prior to the adoption of the service rate ordinance, order, or resolution. Any required approvals by the Kentucky Public Service Commission shall be obtained.
6. The Borrower must complete and return the attached "Authorization for Electronic Deposit of Vendor Payment" form to U.S. Bank.
7. The Borrower must provide documentation of Eclearinghouse Endorsement and Eclearinghouse Comments.
8. Prior to the project bid, an environmental review shall be conducted by the Division of Water for all construction projects receiving State Revolving Funds ("SRF") money.
9. Technical plans and specifications and a complete SRF specifications checklist shall be approved by the Division of Water prior to project bid.
10. All easements or purchases of land shall be completed prior to commencement of construction. Clear Site Certification of all land or easement acquisitions shall be provided to the Division of Water. DOW representatives shall be notified for attendance of the pre-construction conference.
11. Project changes or additions deviating from the original scope of work described in the Project Profile may require a new or amended environmental review and change order review before they can be included in the SRF loan project.
12. The Borrower must provide certification from their legal counsel stating that they have prepared construction specifications in accordance with all applicable state or federal wage rate laws, and that the procurement procedures, including those for construction, land, equipment and professional services that are a part of the project, are in compliance with

applicable federal, state and local procurement laws.

13. The Borrower shall implement the Kentucky Uniform System of Accounting (KUSoA), or an alternative approved by the Authority and assure that rates and charges for services are based upon the cost of providing such service.
14. The Borrower shall comply with all Davis Bacon related monitoring and reporting and require all contractors to pay wages pursuant to applicable prevailing wage rates for all work relating to the subject Project.
15. The project shall comply with the reporting requirements of the Transparency Act, and shall complete the attached Transparency Act Reporting Information Form and provide to the Authority no later than 30 days after the KIA Board approval date of your loan.
16. Based on the final "as-bid" project budget, the Borrower must provide satisfactory proof, based on then existing conditions, that the revenue projections in the attached descriptions are still obtainable and that the projections of operating expenses have not materially changed. The "as bid" project budget shall be reviewed and approved by the consulting engineer.
17. The project shall comply with American Iron and Steel requirements of The Consolidated Appropriations Act of 2014 (H.R. 3547), which became effective January 17, 2014, unless engineering plans and specifications were approved by the Division of Water prior to the effective date.

SRF LOAN CONDITIONS CHECKLIST

Congratulations on receiving a conditional commitment of funding from the State Revolving Fund (SRF) Program. Borrowers will now be assigned a Compliance Analyst to help guide them through the rest of the loan process based on which Area Development District (ADD) they are located. Please submit all documents to one of the following contacts:

- Julie Bickers (Julie.Bickers@ky.gov, 502-892-3455): Purchase, Pennyriple, Green River, Barren River, Lake Cumberland.
- Debbie Landrum (Debbie.Landrum@ky.gov, 502-892-3454): Lincoln Trail, KIPDA, Northern KY, Bluegrass.
- Sarah Parsley (Sarah.Parsley@ky.gov, 502-892-3177): Buffalo Trace, Gateway, FIVCO, Big Sandy, KY River, Cumberland Valley

After all of the conditions of the Conditional Commitment Letter have been fulfilled, KIA will initiate the Assistance Agreement with the borrower. The Assistance Agreement must be fully executed before any funds may be disbursed. The following is a list of items needed to process your loan (forms can be found here <https://kia.ky.gov/FinancialAssistance/Pages/Forms.aspx>):

Before bid opening, submit the following items to the designated Compliance Analyst/DOW Contact:

Submit To:		
KIA	<input type="checkbox"/>	Conditional Commitment Letter (this letter is sent to the borrower via email shortly following KIA board approval and is to be signed by the authorizing official);
KIA	<input type="checkbox"/>	Authorization for Electronic Deposit/Debit of Borrower Disbursements/ Payment (these forms are attached to the loan commitment letter sent after KIA board approval and are to be signed by the authorizing official and forwarded directly to US Bank)
KIA	<input type="checkbox"/>	Transparency Form (this form is attached to the loan commitment letter sent after KIA board approval)
DOW	<input type="checkbox"/>	Fiscal Sustainability Plan Certification and Cost and Effectiveness Certification (required for "A" loans only, prior to plans approval)
DOW	<input type="checkbox"/>	Environmental review (Kentucky Division of Water will review and is required prior to plans approval. KIA will need copy of approval letter)
DOW	<input type="checkbox"/>	Plans and specifications (Kentucky Division of Water will review and KIA will need copy of approval letter)
KIA	<input type="checkbox"/>	Proof of compliance with any special condition identified in the Conditional Commitment Letter (e.g. adopted ordinance)

After the project has opened bids, please submit the following items to the designated Compliance Analyst/DOW Contact. It is imperative that the remaining standard conditions are fulfilled by the deadlines set forth in the Conditional Commitment Letter.

Submit To:		
DOW	<input type="checkbox"/>	Authority to Award (ATA) Package , the Kentucky Division of Water will review and forward approval to KIA.
DOW	<input type="checkbox"/>	Davis-Bacon prevailing wage rates , the Kentucky Division of Water will review and forward approval to KIA.
KIA	<input type="checkbox"/>	Procurement and Wage Certification (KIA sends to borrower after bid opening.)
KIA	<input type="checkbox"/>	Certification of obtainable revenue projections (KIA sends to borrower after bid opening.)
DOW	<input type="checkbox"/>	Certification of clear site (DOW will forward to KIA.)
	<input type="checkbox"/>	Plans and specifications approval from the Kentucky Division of Water (DOW will send approval to KIA.)
KIA	<input type="checkbox"/>	Public Service Commission (PSC) approval , (CPCN and Authorization to Incur Debt) if applicable.

**AUTHORIZATION FOR ELECTRONIC DEPOSIT
OF BORROWER PAYMENT
KENTUCKY INFRASTRUCTURE AUTHORITY
(FUND F20-013)**

Borrower Information:

Name: _____

Address: _____

City: _____ State: KY Zip: _____

Federal I.D. # _____

Contact Name: _____ Telephone: _____

Email: _____

Financial Institution Information:

Bank Name: _____

Branch: _____ Phone No: _____

City: _____ State: _____ Zip: _____

Transit / ABA No.: _____

Account Name: _____

Account Number: _____

I, the undersigned, authorize payments directly to the account indicated above and to correct any errors which may occur from the transactions. I also authorize the Financial Institution to post these transactions to that account.

Signature: _____ Date: _____

Name Printed: _____ Job Title: _____

Please return completed form to:

**U.S. Bank
Attention: Corporate Trust Administration
One Financial Square
Mail Code: CN-KY-0850
Louisville, KY 40202**

KIA Loan # _____

**ACH DEBIT AUTHORIZATION FORM
AUTHORIZATION AGREEMENT FOR PRE-ARRANGED PAYMENTS
(DEBITS)**

The undersigned hereby authorizes U.S. Bank National Association Corporate Trust Department ("U.S. Bank") to initiate debit entries to the account indicated below at the bank named below:

CHECKING: SAVINGS:
BANK NAME: _____ BRANCH: _____
CITY: _____ STATE: _____ ZIP CODE: _____
BANK TRANSIT/ABA #: _____ ACCOUNT #: _____

This authority is to remain in full force and effect until U.S. Bank has received written notification from the undersigned of its termination in such time and in such manner as to afford U.S. Bank a reasonable opportunity to act. The undersigned has the right to stop payment of a debit entry by reasonable prior written notification to U.S. Bank. After the above account has been charged, the undersigned has the right to have the amount of any erroneous debit immediately credited to its account by U.S. Bank up to 30 days following issuance of a statement.

NAME OF ENTITY: _____
ADDRESS: _____

TAX IDENTIFICATION NUMBER: _____

By: _____ Date: _____
Authorized Signer

Send to: U.S. Bank
Attention: Corporate Trust Administration
One Financial Square
Mail Code: CN-KY-0850
Louisville, KY 40202

**TRANSPARENCY ACT REPORTING INFORMATION FORM
CLEAN WATER STATE REVOLVING FUND
AND
DRINKING WATER STATE REVOLVING FUND**

This form is required for projects funded in whole or in part from the Clean Water State Revolving Fund or the Drinking Water State Revolving Fund. This form is to be completed and returned with the signed Conditional Commitment Letter from the Kentucky Infrastructure Authority.

Borrower Information:

Name:	
Data Universal Numbering system (DUNS) No.*:	
KIA Loan Number:	
Street Address	
City, State and Zip (Zip must include 4 digit extension)	
Federal Congressional District(s) of Borrower Utility Service Area:	

*If the DUNS No. provided above is registered under a different name than the recipient of funding, please provide the registration name below:

DUNS Name	
-----------	--

*If the recipient has not yet obtained a DUNS Number, please do so no later than 30 days after the KIA Board approval date of your loan request and provide notification to KIA of the number once issued. For instructions on DUNS registration, please contact jeff.abshire@ky.gov.

Physical Location of Project (Primary Place of Performance)

Street Address	
City, State and Zip (Zip must include 4 digit extension)	
Federal Congressional District(s) of Project Location	

Reliance upon Federal Assistance (please answer the below questions Yes or No):

Did recipient receive 80% or more of its annual gross revenues from Federal procurement contracts (and subcontracts) and Federal financial assistance subject to the Transparency Act, as defined at 2 CFR 170.320 (and subawards) during the last fiscal year?	
Did recipient receive \$25 million or more in annual gross revenues from Federal procurement contracts (and subcontracts) and Federal financial assistance subject to the Transparency Act, as defined at 2 CFR 170.320 (and subawards) during the last fiscal year?	
Does the public have access to compensation of senior executives of the recipient through periodic reports filed under Section 13A or 15D of the Securities Exchange Act of 1934 or Section 6104 of the Internal Revenue Code of 1986?	

DUNS Registration Information: <http://fedgov.dnb.com/webform> OR 1-866-705-5711

Registration can be completed over the phone or via the web. Phone registration requests take approximately 10 minutes and are free. Internet requests are fulfilled within 24 hours.

SAMPLE LETTER

[Letterhead of Counsel for Water Utility]

[Date]

Kentucky Infrastructure Authority
100 Airport Road
Frankfort, Kentucky 40601

RE: SRF Loan#
City of xxxxx

Ladies and Gentlemen:

The undersigned is an attorney at law duly admitted to the practice of law in the Commonwealth of Kentucky and is legal counsel to the XXXXXXXXXXXXX, hereinafter referred to as the "Water Utility ". I am familiar with the organization and existence of the Water Utility and the laws of the Commonwealth applicable thereto. Additionally I am familiar with the water project (the "Project") with respect to which the funding commitment by and between the Kentucky Infrastructure Authority ("Authority") and the Water Utility.

I have reviewed the commitment letter by and between the Authority and the Water Utility and the documentation regarding wage rates and procurement with respect to the Project.

Based upon my review I am of the opinion that:

The Water Utility has prepared construction specifications in accordance with all applicable federal wage rate laws and that the procurement procedures including those for construction, land, equipment and professional services that are a part of the project are in compliance with all applicable federal, state and local procurement laws.

Respectfully,

**STATEMENT OF APPROVAL
OF PROJECTIONS OF REVENUE AND EXPENSES**

Borrower Name: _____

Loan No.: _____

I hereby certify that the revenue projections in the attached descriptions are still obtainable and that projections of operating expenses have not materially changed based on the "as-bid" budget submitted for the Project.

Signed: _____

Borrower

Date

ATTACHMENT B

**Estill County Water District #1
F20-013**

EXECUTIVE SUMMARY		Reviewer	Meili Sun	
KENTUCKY INFRASTRUCTURE AUTHORITY		Date	December 5, 2019	
FUND F, FEDERALLY ASSISTED DRINKING WATER		KIA Loan Number	F20-013	
REVOLVING LOAN FUND		WRIS Number	WX21065009	
BORROWER	ESTILL COUNTY WATER DISTRICT #1 ESTILL COUNTY			
BRIEF DESCRIPTION				
<p>This project will implement improvements designed to help reduce unaccounted for water in the system. It will install flow metering and backflow prevention devices, develop a hydraulic model, and relocate or replace 6 substandard existing river crossings.</p> <p>The scope of work also includes purchase and installation of new residential meters throughout the service area. The Estill County Water District currently serves approximately 3,800 residential and commercial customers in Estill County.</p>				
PROJECT FINANCING		PROJECT BUDGET		
Fund F Loan	\$2,399,450	RD Fee %	Actual %	
ARC Grant	500,000			
				Administrative Expenses \$65,000
				Legal Expenses 25,000
				Land, Easements 10,000
		Eng - Design / Const 7.4%	5.9%	148,500
		Eng - Insp 4.3%	4.2%	106,000
		Eng - Other		20,000
		Construction		2,300,000
		Contingency		199,950
		Other		25,000
TOTAL	\$2,899,450	TOTAL		\$2,899,450
REPAYMENT	Rate	0.50%	Est. Annual Payment	\$53,791
	Term	30 Years	1st Payment	6 Mo. after first draw
PROFESSIONAL SERVICES	Engineer	Bell Engineering		
	Bond Counsel	Rubin & Hays		
PROJECT SCHEDULE	Bid Opening	Apr-20		
	Construction Start	May-20		
	Construction Stop	Oct-20		
DEBT PER CUSTOMER	Existing	\$1,138		
	Proposed	\$1,112		
OTHER DEBT	See Attached			
RESIDENTIAL RATES		Users	Avg. Bill	
	Current	3,815	\$46.18 (for 4,000 gallons)	
	Additional	0	\$46.18 (for 4,000 gallons)	
REGIONAL COORDINATION	This project is consistent with regional planning recommendations.			
CASHFLOW	Cash Flow Before Debt Service	Debt Service	Cash Flow After Debt Service	Coverage Ratio
Audited 2016	105,355	273,816	(168,461)	0.4
Audited 2017	95,300	253,314	(158,014)	0.4
Audited 2018	191,584	252,039	(60,455)	0.8
Projected 2019	204,619	204,819	(200)	1.0
Projected 2020	301,599	204,020	97,579	1.5
Projected 2021	278,349	233,513	44,836	1.2
Projected 2022	260,754	212,433	48,321	1.2
Projected 2023	242,807	212,433	30,374	1.1

Reviewer: Meili Sun
Date: December 5, 2019
Loan Number: F20-013

**KENTUCKY INFRASTRUCTURE AUTHORITY
DRINKING WATER STATE REVOLVING FUND (FUND F)
ESTILL COUNTY WATER DISTRICT #1, ESTILL COUNTY
PROJECT REVIEW
WX21065009**

I. PROJECT DESCRIPTION

The Estill County Water District #1 ("ECWD") is requesting a Fund F loan in the amount of \$2,399,450 for the System Improvement and Meter Replacement project. This project will implement improvements designed to help reduce unaccounted for water in the system. It will install flow metering and backflow prevention devices, develop a hydraulic model, and relocate or replace five substandard existing creek crossings. The ECWD has taken an active approach to minimizing unaccounted for water loss through pump stations and telemetry upgrades, valve replacements, installation of test meter assemblies within the system, utilization of leak detection services, and purchase of a hydraulic model for the system. The scope of work also includes purchase and installation of new residential meters throughout the service area. On site testing indicates that the current meters are rapidly reaching the end of the useful life and inaccurate in measuring low "trickle" flows.

The ECWD is a PSC regulated system serving approximately 3,800 residential and commercial customers in Estill County. All rate changes related to retail and water purchase are subject to PSC approval.

II. PROJECT BUDGET

	<u>Total</u>
Administrative Expenses	\$ 65,000
Legal Expenses	25,000
Land, Easements	10,000
Engineering Fees – Design	106,950
Engineering Fees – Construction	41,550
Engineering Fees – Inspection	106,000
Engineering Fees – Other	20,000
Construction	2,300,000
Contingency	199,950
Other	25,000
Total	<u>\$ 2,899,450</u>

III. PROJECT FUNDING

	Amount	%
KIA Fund F Loan	\$ 2,399,450	83%
ARC Grant	500,000	17%
Total	\$ 2,899,450	100%

IV. KIA DEBT SERVICE

Construction Loan	\$ 2,399,450
Principal Forgiveness	1,000,000
Amortized Loan Amount	\$ 1,399,450
Interest Rate	0.50%
Loan Term (Year)	30
Estimated Annual Debt Service	\$ 50,293
Administrative Fee (0.25%)	3,499
Annual Debt Service	\$ 53,791

V. PROJECT SCHEDULE

Bid Opening	April 2020
Construction Start	May 2020
Construction Stop	October 2020

VI. CUSTOMER COMPOSITION AND RATE STRUCTURE

A) Customers

Customers	Current
Residential	3,600
Commercial	215
Total	3,815

B) Rates

	Current	Prior	Prior	Prior
Date of Last Rate Increase	08/22/19	08/20/18	11/07/17	09/18/17
Minimum 2,000 Gallons	\$21.58	\$21.58	\$21.18	\$18.98
Next 3,000 Gallons	10.53	10.53	10.33	9.26
Next 5,000 Gallons	10.31	10.31	10.11	9.06
Water Loss Control Program Surcharge	3.54			
Cost for 4,000 gallons	\$46.18	\$42.64	\$41.84	\$37.50
Increase %	8.3%	1.9%	11.6%	
Affordability Index (Rate/MHI)	1.8%	1.7%	1.7%	1.5%

VII. DEMOGRAPHICS

Based on current Census data from the American Community Survey 5-Year Estimate 2013-2017, the Utility's service area population was 9,378 with a Median Household Income (MHI) of \$30,080. The median household income for the Commonwealth is \$46,535. The ECWD's disadvantaged community status will qualify the project for a 30 year term at 0.5% interest rate and \$1,000,000 in principal forgiveness.

Year	Population		County Unemployment	
	County	% Change	Date	Rate
1980	14,495		June 2005	6.7%
1990	14,614	0.8%	June 2010	12.7%
2000	15,307	4.7%	June 2015	6.1%
2010	14,672	-4.1%	June 2019	5.6%
Current	14,382	-2.0%		
Cumulative %		-0.8%		

VIII. 2019 CAPITALIZATION GRANT EQUIVALENCIES

Additional Subsidization – This project qualifies for additional subsidization. Principal forgiveness of 50% of the assistance amount, not to exceed \$1,000,000 will be credited to the loan balance upon release of liens on all contracts and disbursement of the final draw request by KIA to the borrower.

IX. FINANCIAL ANALYSIS

Financial information was obtained from the audited financial statements for the years ended December 31, 2016 through December 31, 2018. ECWD omitted to report GASB 68 - Accounting and Financial Reporting for Pensions and GASB 75 - Other Postemployment Benefit in 2016 and 2017. The non-cash impact of pension and OPEB liabilities had been removed from 2018 operating expenses. Percentage references in the History section below were based on whole dollar amounts and not the rounded amounts presented.

HISTORY

Total revenues went up 20.3% from \$1.57 million in 2016 to \$1.89 million in 2018 due to the surcharges collected for water loss control program while operating expenses increased 16.0% from \$1.47 million to \$1.70 million during the same period. A total of \$74,200 non-recurring expenses associated with past-due audit fees, legal fees for PSC approval of water loss surcharge, and unplanned maintenance and repair work had been removed from the projections in order to more objectively present ECWD's financial position. The debt service, replacement, and depreciation reserve accounts were underfunded by \$310,000 as of October 31, 2019. The debt coverage ratio was 0.4, 0.4, and 0.8 for 2016, 2017, and 2018 respectively.

The balance sheet reflected a current ratio of 1.2, debt to equity ratio of 1.8, 42.4 days sales in accounts receivable, and 0.7 months of operating expenses in unrestricted cash.

PROJECTIONS

Projections are based on the following assumptions:

- 1) The monthly water loss surcharge will be discontinued once the goal of the water loss control program is achieved with the help of this loan. However, the revenue decrease will be offset by the savings of water purchase cost.
- 2) ECWD will set aside \$45,000 annually for 7 years to replenish the underfunded reserve accounts, subject to KIA annual administrative compliance monitoring.
- 3) Expenses will increase 2% each year for inflation.
- 4) Debt service coverage is 1.2 in 2022 when full year principal and interest repayments begin.

Based on the pro forma assumptions, the utility shows adequate cash flow to repay the KIA Fund F loan.

REPLACEMENT RESERVE

The replacement reserve will be 5% (\$120,000 total) of the final amount borrowed (prior to principal forgiveness, if any) to be funded annually (\$6,000 yearly) each December 1 for 20 years and maintained for the life of the loan.

X. DEBT OBLIGATIONS

	Outstanding	Maturity
Citizens Guaranty Promissory Note	\$ 241,440	2029
RD Bonds 2018 Issue	4,100,693	2058
Total	\$ 4,342,133	

XI. CONTACTS

Legal Applicant	
Name	Estill County Water District #1
Address	76 Cedar Grove Road Irvine, KY 40336
County	Estill
Authorized Official	Blain Click
Phone	(606) 723-3795

Project Contact - Applicant	
Name	Audrea Miller
Representing	Estill County Water District #1
Address	76 Cedar Grove Road Irvine, KY 40336
Phone	(606) 723-3795
Email	a.miller@estillcountywater.com

Project Administrator	
Name	Karyn Leverenz
Organization	Bluegrass Area Development District
Address	699 Perimeter Drive Lexington, KY 40517
Phone	(859) 269-8021
Email	kleverenz@bgadd.org

Consulting Engineer	
Name	Robert Alan Bowman
Firm	Bell Engineering
Address	2480 Fortune Drive Stanford, KY 40484
Phone	(606) 365-2534
Email	abowman@hkbell.com

XII. RECOMMENDATIONS

KIA staff recommends approval of the loan with the standard conditions.

**ESTILL COUNTY WATER DISTRICT #1
FINANCIAL SUMMARY (DECEMBER YEAR END)**

	<u>Audited</u> <u>2016</u>	<u>Audited</u> <u>2017</u>	<u>Audited</u> <u>2018</u>	<u>Projected</u> <u>2019</u>	<u>Projected</u> <u>2020</u>	<u>Projected</u> <u>2021</u>	<u>Projected</u> <u>2022</u>	<u>Projected</u> <u>2023</u>
Balance Sheet								
Assets								
Current Assets	269,775	283,468	354,109	354,082	386,798	395,765	405,429	411,504
Other Assets	8,993,620	8,554,723	8,309,017	7,773,279	10,399,578	10,017,747	9,638,704	9,245,303
Total	9,263,395	8,838,191	8,663,126	8,127,361	10,786,376	10,413,512	10,044,133	9,656,807
Liabilities & Equity								
Current Liabilities	386,966	333,895	306,418	312,085	368,058	331,282	336,963	342,903
Long Term Liabilities	4,178,791	4,204,188	5,292,537	5,051,701	6,297,148	6,183,920	6,069,112	5,952,464
Total Liabilities	4,565,757	4,538,083	5,598,955	5,363,786	6,665,206	6,515,203	6,406,075	6,295,367
Net Assets	4,697,638	4,300,108	3,064,171	2,763,575	4,121,170	3,898,309	3,638,057	3,361,440
Cash Flow								
Revenues	1,572,899	1,611,195	1,892,791	1,894,661	2,008,553	2,008,553	2,008,553	2,008,553
Operating Expenses	1,466,506	1,514,590	1,701,479	1,690,314	1,707,226	1,730,476	1,748,071	1,766,018
Other Income	(1,038)	(1,305)	272	272	272	272	272	272
Cash Flow Before Debt Service	105,355	95,300	191,584	204,619	301,599	278,349	260,754	242,807
Debt Service								
Existing Debt Service	273,816	253,314	252,039	204,819	204,020	206,618	158,642	158,642
Proposed KIA Loan	0	0	0	0	0	26,896	53,791	53,791
Total Debt Service	273,816	253,314	252,039	204,819	204,020	233,513	212,433	212,433
Cash Flow After Debt Service	(168,461)	(158,014)	(60,455)	(200)	97,579	44,836	48,321	30,374
Ratios								
Current Ratio	0.7	0.8	1.2	1.1	1.1	1.2	1.2	1.2
Debt to Equity	1.0	1.1	1.8	1.9	1.6	1.7	1.8	1.9
Days Sales in Accounts Receivable	45.6	47.9	42.4	42.3	42.3	42.3	42.3	42.3
Months Operating Expenses in Unrestricted Cash	0.0	0.0	0.7	0.8	0.9	1.0	1.0	1.1
Debt Coverage Ratio	0.4	0.4	0.8	1.0	1.5	1.2	1.2	1.1

EXHIBIT 24



KENTUCKY INFRASTRUCTURE AUTHORITY

Andy Beshear
Governor

Capital Center Complex
100 Airport Road, Third Floor
Frankfort, Kentucky 40601
(502) 573-0260
(502) 573-0157 (fax)
kia.ky.gov

Sandy Williams
Deputy Executive Director

February 3, 2021

Chairman Blain Click
Estill County Water District No. 1
76 Cedar Grove Rd
Irvine, KY 40336

KENTUCKY INFRASTRUCTURE AUTHORITY
FEDERALLY ASSISTED DRINKING WATER REVOLVING LOAN FUND
CONDITIONAL COMMITMENT LETTER (F20-013)
EXTENSION

Dear Chairman Click:

The Kentucky Infrastructure Authority (“the Authority”) has approved an extension of the Drinking Water State Revolving Fund (DWSRF) loan F20-013 for the Phase 11 Zone Meter and River Crossing Installation Project. The Authority has extended the deadline for the District to meet the conditions set forth in the conditional commitment letter for a period of six (6) months. The original expiration date was December 4, 2020. The new expiration date will be June 3, 2021. If the project does not meet the conditions by the new expiration date, the commitment may be rescinded.

Please inform the Authority of any changes in your financing plan as soon as possible. We wish you every success for this project to benefit both your community and the Commonwealth.

Sincerely,

A handwritten signature in blue ink that reads "Sandy Williams".

Sandy Williams
Deputy Executive Director
Kentucky Infrastructure Authority

EXHIBIT 25

KENTUCKY INFRASTRUCTURE AUTHORITY
 ANTICIPATED REPAYMENT SCHEDULE
 LOAN #F20-013
 ESTILL COUNTY WATER DISTRICT #1

Original Loan Amount \$ 2,399,450.00
 Principal Forgiveness \$ (1,000,000.00)
 Repayment Amount \$ 1,399,450.00

0.50% Interest
 \$25,146.28 P & I Calculation

Payment Date	Principal Due	Interest Due	Interest Rate	Principal & Interest	Servicing Fee	Credit Due	Total Payment	Principal Balance	R & M Reserve	Total Reserve
12/01/21	\$21,647.65	\$3,498.63	0.50%	\$25,146.28	\$1,749.31	\$0.00	\$26,895.59	\$1,399,450.00	\$6,000.00	\$6,000.00
06/01/22	\$21,701.77	\$3,444.51	0.50%	\$25,146.28	\$1,722.25	\$0.00	\$26,868.53	\$1,377,802.35	\$0.00	\$6,000.00
12/01/22	\$21,756.03	\$3,390.25	0.50%	\$25,146.28	\$1,695.13	\$0.00	\$26,841.41	\$1,356,100.58	\$0.00	\$6,000.00
06/01/23	\$21,810.42	\$3,335.86	0.50%	\$25,146.28	\$1,667.93	\$0.00	\$26,814.21	\$1,334,344.55	\$0.00	\$12,000.00
12/01/23	\$21,864.94	\$3,281.34	0.50%	\$25,146.28	\$1,640.67	\$0.00	\$26,786.95	\$1,312,534.13	\$0.00	\$12,000.00
06/01/24	\$21,919.61	\$3,226.67	0.50%	\$25,146.28	\$1,613.34	\$0.00	\$26,759.62	\$1,290,669.19	\$0.00	\$18,000.00
12/01/24	\$21,974.41	\$3,171.87	0.50%	\$25,146.28	\$1,585.94	\$0.00	\$26,732.22	\$1,268,749.58	\$0.00	\$18,000.00
06/01/25	\$22,029.34	\$3,116.94	0.50%	\$25,146.28	\$1,558.47	\$0.00	\$26,704.75	\$1,247,775.17	\$0.00	\$24,000.00
12/01/25	\$22,084.42	\$3,061.86	0.50%	\$25,146.28	\$1,530.93	\$0.00	\$26,677.21	\$1,227,745.83	\$0.00	\$30,000.00
06/01/26	\$22,139.63	\$3,006.65	0.50%	\$25,146.28	\$1,503.33	\$0.00	\$26,649.61	\$1,207,661.41	\$0.00	\$30,000.00
12/01/26	\$22,194.98	\$2,951.30	0.50%	\$25,146.28	\$1,475.65	\$0.00	\$26,621.93	\$1,188,326.80	\$0.00	\$36,000.00
06/01/27	\$22,250.46	\$2,895.82	0.50%	\$25,146.28	\$1,447.91	\$0.00	\$26,594.19	\$1,168,076.34	\$0.00	\$36,000.00
12/01/27	\$22,306.09	\$2,840.19	0.50%	\$25,146.28	\$1,420.10	\$0.00	\$26,566.38	\$1,147,770.25	\$0.00	\$42,000.00
06/01/28	\$22,361.85	\$2,784.43	0.50%	\$25,146.28	\$1,392.21	\$0.00	\$26,538.49	\$1,091,408.40	\$0.00	\$42,000.00
12/01/28	\$22,417.76	\$2,728.52	0.50%	\$25,146.28	\$1,364.26	\$0.00	\$26,510.54	\$1,068,990.64	\$0.00	\$48,000.00
06/01/29	\$22,473.80	\$2,672.48	0.50%	\$25,146.28	\$1,336.24	\$0.00	\$26,482.52	\$1,046,516.84	\$0.00	\$48,000.00
12/01/29	\$22,529.99	\$2,616.29	0.50%	\$25,146.28	\$1,308.15	\$0.00	\$26,454.43	\$1,023,986.85	\$0.00	\$54,000.00
06/01/30	\$22,586.31	\$2,559.97	0.50%	\$25,146.28	\$1,279.98	\$0.00	\$26,426.26	\$1,001,400.54	\$0.00	\$54,000.00
12/01/30	\$22,642.78	\$2,503.50	0.50%	\$25,146.28	\$1,251.75	\$0.00	\$26,398.03	\$978,757.76	\$0.00	\$60,000.00
06/01/31	\$22,699.39	\$2,446.89	0.50%	\$25,146.28	\$1,223.45	\$0.00	\$26,369.73	\$956,058.37	\$0.00	\$60,000.00
12/01/31	\$22,756.13	\$2,390.15	0.50%	\$25,146.28	\$1,195.07	\$0.00	\$26,341.35	\$933,302.24	\$0.00	\$66,000.00
06/01/32	\$22,813.02	\$2,333.26	0.50%	\$25,146.28	\$1,166.63	\$0.00	\$26,312.91	\$910,489.22	\$0.00	\$66,000.00
12/01/32	\$22,870.06	\$2,276.22	0.50%	\$25,146.28	\$1,138.11	\$0.00	\$26,284.39	\$887,619.16	\$0.00	\$72,000.00
06/01/33	\$22,927.23	\$2,219.05	0.50%	\$25,146.28	\$1,109.52	\$0.00	\$26,255.80	\$864,691.93	\$0.00	\$72,000.00
12/01/33	\$22,984.55	\$2,161.73	0.50%	\$25,146.28	\$1,080.86	\$0.00	\$26,227.14	\$841,707.38	\$0.00	\$78,000.00
06/01/34	\$23,042.01	\$2,104.27	0.50%	\$25,146.28	\$1,052.13	\$0.00	\$26,198.41	\$818,665.37	\$0.00	\$78,000.00
12/01/34	\$23,099.62	\$2,046.66	0.50%	\$25,146.28	\$1,023.33	\$0.00	\$26,169.61	\$795,565.75	\$0.00	\$84,000.00
06/01/35	\$23,157.37	\$1,988.91	0.50%	\$25,146.28	\$994.46	\$0.00	\$26,140.74	\$772,408.38	\$0.00	\$84,000.00
12/01/35	\$23,215.26	\$1,931.02	0.50%	\$25,146.28	\$965.51	\$0.00	\$26,111.79	\$749,193.12	\$0.00	\$90,000.00
06/01/36	\$23,273.30	\$1,872.98	0.50%	\$25,146.28	\$936.49	\$0.00	\$26,082.77	\$725,919.82	\$0.00	\$90,000.00
12/01/36	\$23,331.48	\$1,814.80	0.50%	\$25,146.28	\$907.40	\$0.00	\$26,053.68	\$702,588.34	\$0.00	\$96,000.00
06/01/37	\$23,389.81	\$1,756.47	0.50%	\$25,146.28	\$878.24	\$0.00	\$26,024.52	\$679,198.53	\$0.00	\$96,000.00
12/01/37	\$23,448.28	\$1,698.00	0.50%	\$25,146.28	\$849.00	\$0.00	\$25,995.27	\$655,750.25	\$0.00	\$102,000.00
06/01/38	\$23,506.90	\$1,639.38	0.50%	\$25,146.28	\$819.69	\$0.00	\$25,965.97	\$632,243.35	\$0.00	\$102,000.00
12/01/38	\$23,565.67	\$1,580.61	0.50%	\$25,146.28	\$790.30	\$0.00	\$25,936.58	\$608,677.68	\$0.00	\$108,000.00
06/01/39	\$23,624.59	\$1,521.69	0.50%	\$25,146.28	\$760.85	\$0.00	\$25,907.13	\$585,053.09	\$0.00	\$108,000.00
12/01/39	\$23,683.65	\$1,462.63	0.50%	\$25,146.28	\$731.32	\$0.00	\$25,877.60	\$561,369.44	\$0.00	\$114,000.00
06/01/40	\$23,742.86	\$1,403.42	0.50%	\$25,146.28	\$701.71	\$0.00	\$25,847.99	\$537,626.58	\$0.00	\$114,000.00
12/01/40	\$23,802.21	\$1,344.07	0.50%	\$25,146.28	\$672.03	\$0.00	\$25,818.31	\$513,824.37	\$6,000.00	\$120,000.00
06/01/41	\$23,861.72	\$1,284.56	0.50%	\$25,146.28	\$642.28	\$0.00	\$25,788.56	\$489,962.65	\$0.00	\$120,000.00
12/01/41	\$23,921.37	\$1,224.91	0.50%	\$25,146.28	\$612.45	\$0.00	\$25,758.73	\$466,041.28	\$0.00	\$120,000.00
06/01/42	\$23,981.18	\$1,165.10	0.50%	\$25,146.28	\$582.55	\$0.00	\$25,728.83	\$442,060.10	\$0.00	\$120,000.00
12/01/42	\$24,041.13	\$1,105.15	0.50%	\$25,146.28	\$552.58	\$0.00	\$25,698.86	\$418,018.97	\$0.00	\$120,000.00

Payment Date	Principal Due	Interest Due	Interest Rate	Principal & Interest	Servicing Fee	Credit Due	Total Payment	Principal Balance	R & M Reserve	Total Reserve
06/01/43	\$24,101.23	\$1,045.05	0.50%	\$25,146.28	\$522.52	\$0.00	\$25,668.80	\$393,917.74	\$0.00	\$120,000.00
12/01/43	\$24,161.49	\$984.79	0.50%	\$25,146.28	\$492.40	\$0.00	\$25,638.68	\$369,756.25	\$0.00	\$120,000.00
06/01/44	\$24,221.89	\$924.39	0.50%	\$25,146.28	\$462.20	\$0.00	\$25,608.48	\$345,534.36	\$0.00	\$120,000.00
12/01/44	\$24,282.44	\$863.84	0.50%	\$25,146.28	\$431.92	\$0.00	\$25,578.20	\$321,251.92	\$0.00	\$120,000.00
06/01/45	\$24,343.15	\$803.13	0.50%	\$25,146.28	\$401.56	\$0.00	\$25,547.84	\$296,908.77	\$0.00	\$120,000.00
12/01/45	\$24,404.01	\$742.27	0.50%	\$25,146.28	\$371.14	\$0.00	\$25,517.42	\$272,504.76	\$0.00	\$120,000.00
06/01/46	\$24,465.02	\$681.26	0.50%	\$25,146.28	\$340.63	\$0.00	\$25,486.91	\$248,039.74	\$0.00	\$120,000.00
12/01/46	\$24,526.18	\$620.10	0.50%	\$25,146.28	\$310.05	\$0.00	\$25,456.33	\$223,513.56	\$0.00	\$120,000.00
06/01/47	\$24,587.50	\$558.78	0.50%	\$25,146.28	\$279.39	\$0.00	\$25,425.67	\$198,926.06	\$0.00	\$120,000.00
12/01/47	\$24,648.96	\$497.32	0.50%	\$25,146.28	\$248.66	\$0.00	\$25,394.94	\$174,277.10	\$0.00	\$120,000.00
06/01/48	\$24,710.59	\$435.69	0.50%	\$25,146.28	\$217.85	\$0.00	\$25,364.13	\$149,566.51	\$0.00	\$120,000.00
12/01/48	\$24,772.36	\$373.92	0.50%	\$25,146.28	\$186.96	\$0.00	\$25,333.24	\$124,794.15	\$0.00	\$120,000.00
06/01/49	\$24,834.29	\$311.99	0.50%	\$25,146.28	\$155.99	\$0.00	\$25,302.27	\$99,959.86	\$0.00	\$120,000.00
12/01/49	\$24,896.38	\$249.90	0.50%	\$25,146.28	\$124.95	\$0.00	\$25,271.23	\$75,063.48	\$0.00	\$120,000.00
06/01/50	\$24,958.62	\$187.66	0.50%	\$25,146.28	\$93.83	\$0.00	\$25,240.11	\$50,104.86	\$0.00	\$120,000.00
12/01/50	\$25,021.02	\$125.26	0.50%	\$25,146.28	\$62.63	\$0.00	\$25,208.91	\$25,083.84	\$0.00	\$120,000.00
06/01/51	\$25,083.84	\$62.44	0.50%	\$25,146.28	\$31.35	\$0.00	\$25,177.63	\$0.00	\$0.00	\$120,000.00
Totals	\$1,399,450.00	\$109,326.80		\$1,508,776.80	\$54,663.54	\$0.00	\$1,563,440.34			\$120,000.00

Created by K/A on 08/14/2020

EXHIBIT 26

Page 1

NOTIFICATION OF INTENT TO FINANCE AND APPLICATION FOR DEBT APPROVAL

Form # SLDO-1
Revised 1/1/2011

For DLG staff use only:

File # _____
Received _____

Completion and delivery of this form to the address below shall satisfy the requirements of KRS 65.117, which prohibits any city, county, urban-county, consolidated local government, charter county, special district, or taxing district from entering into any financing obligation of any nature, except leases under \$200,000, without first notifying the state local debt officer in writing. This form shall also serve as application for approval of debt issuance when applicable. An electronic version of the form is available at www.dlg.ky.gov.

✓ **Type of debt to be issued (must check one):** **SLDO Approval Required** **Complete Sections**

<input type="checkbox"/> Short Term Borrowing - KRS 65.7701 et seq.	No	A, B, C
<input type="checkbox"/> Lease from \$200,000 - \$500,000 - KRS 65.940 et seq.	No	A, B, D
<input type="checkbox"/> Lease exceeding \$500,000 - KRS 65.940 et seq.	Yes (Counties only)	A, B, D
<input type="checkbox"/> General Obligation Bond - KRS Chapter 66	Yes (Counties only)	A, B, E
<input type="checkbox"/> Public Project Rev. Bond - KRS Chapter 58	No	A, B, E
<input type="checkbox"/> Public Project Rev. Bond w/Lease - KRS 66.310(2)	Yes (Counties only)	A, B, D, E
<input type="checkbox"/> Industrial Revenue Bond - KRS Chapter 103	Yes (All Borrowers)	A, B, F
<input type="checkbox"/> Other Bonds (True Revenue, Utility Assessment, TIF)	No	A, B, E

X Assistance Agreement - Kentucky Infrastructure Authority

Section A - Borrower Information

Agency Name	Estill County Water District No. 1		
Governing Body	Estill County Water District No. 1 Board of Commissioners		
Street Address	76 Cedar Grove Road		
P.O. Box #	City	Irvine	
County	Estill	Zip	40336
Authorized Official	Audrea Miller, General Manager		

Section B - Terms of Financial Obligation

Please provide all relevant information. Fields in **bold** are mandatory.

Principle Amount:	2,399,450	Date of Issue:	05/01/2021
Maturity Date(s):	05/01/2051	Payment Schedule: (must attach schedule)	
Term:	30 Years	Number of Renewal Periods:	0
Interest Rate(s):	0.50	Type of Interest (fixed or variable):	Fixed
Retirement Method:			
Lender's Name:	Kentucky Infrastructure Authority		
Lender's Address:	100 Airport Road, Frankfort, KY 40601		
Right of Termination:	N/A		
Termination Penalties:	N/A		
Prepayment Provisions:	None		
Trustee or Paying Agent:	None		
AOC Funded Percentage:	0.00		

NOTIFICATION OF INTENT TO FINANCE AND APPLICATION FOR DEBT APPROVAL

Form # SLDO-1
Revised 1/1/2011

Section C - Note (Loan) Information/Documentation

Purpose - Briefly explain the documented need that necessitates this note (loan) and the public purpose it is intended to address. (Attach additional information if necessary):

The proposed loan is necessary to purchase and install metering and telemetry equipment necessary to establish a zone metering system and to reduce significant water loss within Estill County Water District. It will also finance the replacement of four stream crossings. The Kentucky Infrastructure Authority's review of the proposed loan and the purpose of the loan is attached.

Pledge of Taxes/Description:

None

Pledge of Revenue/Description:

Estill County Water District No. 1's revenues from the sale of water are pledged as security for the loan

Pledge of Project Revenues (Attach documentation which substantiates the revenue projections):

Have bids been sought by the local governments to determine the financial and programmatic competitiveness of the note (loan) proposal? Yes No

If No, explain what steps were taken to ensure adequate competition.

The Kentucky Infrastructure Authority is an entity of the Commonwealth of Kentucky and provides lowest interest loans. The proposed loan contains a forgiveness provision under which \$1,000,000 of the loan principal will be forgiven. The interest rate is 0.005 percent. No other funding source is able to match such terms.

Required Attachments

1. Certification from local government attesting to the ability to meet additional financial commitments necessitated by the note and statement as to taxes and revenues to be collected during the term of the note. The Kentucky Infrastructure Authority's review of the proposed loan is attached. Estill County Water District will use the proceeds of an existing surcharge to service the proposed loan.

Section D - Lease Information/Documentation

Describe the real or personal property to be acquired or constructed: Not Applicable.

Type of Lease : General Obligation Revenue

Is Lease Annually Renewable? Yes No

Does Agency seek approval without a hearing? Yes No Justification: Revenue Refunding

If yes, must attach certification from counsel regarding county obligation.

Does this lease refund a prior lease? Yes No

If yes, please state the name, date and principal amount of original issue(s) being refunded:

Required Attachments (If lease requires SLDO approval)

1. Minutes from the local public hearing
2. Affidavit of publication of SLDO hearing (if hearing is required) and newspaper advertisement tear sheet
3. Copy of lease
4. Executed copy of ordinance/resolution of fiscal court authorizing the lease
5. Certification from local government attesting to the ability to meet additional financial commitments necessitated by the lease and statement as to taxes and revenues to be collected during the term of the lease.

NOTIFICATION OF INTENT TO FINANCE AND APPLICATION FOR DEBT APPROVAL

Form # SLDO-1
Revised 1/1/2011

Section E - Bond Information/Documentation

Please provide all relevant information. Fields in **bold** are mandatory

Describe the purpose of the bond: Not Applicable.

Bond Counsel:

Counsel Address:

Financial Advisor:

Advisor Address:

Bond Series:

Call Date:

Does this bond refund a prior bond? Yes No

If yes, please state the name, date and principal amount of original issue(s) being refunded:

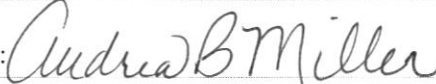
Required Attachments (If SLDO Approval is Required)

1. Minutes from the local public hearing
2. Affidavit of publication of SLDO hearing and newspaper advertisement tear sheet
3. Executed copy of ordinance/resolution of fiscal court authorizing financial plan for the issuance of the bonds
4. Proposed plan of financing
5. Preliminary official statement (if applicable)
6. Sources and uses table

Additional Required Attachments for KRS Chapter 103 Bonds

1. Documentation in an appropriate form substantiating the project's eligibility under KRS 103.2101(1)(a)-(e).
2. If the project requires approval of the reduction in property taxes, attach any documentation provided to agency responsible for approval.

By signing below, the Authorized Official certifies that the foregoing is true and accurate to the best of his or her knowledge.

Name (please print)	Audrea B. Miller	Date:	02/19/2021
Title:	General Manager	Signature:	

Mail to:
Department for Local Government
Attn: State Local Debt Officer
1024 Capital Center Drive, Suite 340
Frankfort, KY 40601

Fax to: 502-573-3712

EXECUTIVE SUMMARY		Reviewer	Meili Sun	
KENTUCKY INFRASTRUCTURE AUTHORITY		Date	December 5, 2019	
FUND F, FEDERALLY ASSISTED DRINKING WATER		KIA Loan Number	F20-013	
REVOLVING LOAN FUND		WRIS Number	WX21065009	
BORROWER	ESTILL COUNTY WATER DISTRICT #1 ESTILL COUNTY			
BRIEF DESCRIPTION				
<p>This project will implement improvements designed to help reduce unaccounted for water in the system. It will install flow metering and backflow prevention devices, develop a hydraulic model, and relocate or replace 6 substandard existing river crossings.</p> <p>The scope of work also includes purchase and installation of new residential meters throughout the service area. The Estill County Water District currently serves approximately 3,800 residential and commercial customers in Estill County.</p>				
PROJECT FINANCING		PROJECT BUDGET		
Fund F Loan	\$2,399,450	RD Fee %	Actual %	
ARC Grant	500,000			
				Administrative Expenses \$65,000
				Legal Expenses 25,000
				Land, Easements 10,000
		Eng - Design / Const 7.4%	5.9%	148,500
		Eng - Insp 4.3%	4.2%	106,000
		Eng - Other		20,000
		Construction		2,300,000
		Contingency		199,950
		Other		25,000
TOTAL	\$2,899,450	TOTAL		\$2,899,450
REPAYMENT	Rate	0.50%	Est. Annual Payment	\$53,791
	Term	30 Years	1st Payment	6 Mo. after first draw
PROFESSIONAL SERVICES	Engineer	Bell Engineering		
	Bond Counsel	Rubin & Hays		
PROJECT SCHEDULE	Bid Opening	Apr-20		
	Construction Start	May-20		
	Construction Stop	Oct-20		
DEBT PER CUSTOMER	Existing	\$1,138		
	Proposed	\$1,112		
OTHER DEBT	See Attached			
RESIDENTIAL RATES		Users	Avg. Bill	
	Current	3,815	\$46.18 (for 4,000 gallons)	
	Additional	0	\$46.18 (for 4,000 gallons)	
REGIONAL COORDINATION	This project is consistent with regional planning recommendations.			
CASHFLOW	Cash Flow Before Debt Service	Debt Service	Cash Flow After Debt Service	Coverage Ratio
Audited 2016	105,355	273,816	(168,461)	0.4
Audited 2017	95,300	253,314	(158,014)	0.4
Audited 2018	191,584	252,039	(60,455)	0.8
Projected 2019	204,619	204,819	(200)	1.0
Projected 2020	301,599	204,020	97,579	1.5
Projected 2021	278,349	233,513	44,836	1.2
Projected 2022	260,754	212,433	48,321	1.2
Projected 2023	242,807	212,433	30,374	1.1

Reviewer: Meili Sun
Date: December 5, 2019
Loan Number: F20-013

**KENTUCKY INFRASTRUCTURE AUTHORITY
DRINKING WATER STATE REVOLVING FUND (FUND F)
ESTILL COUNTY WATER DISTRICT #1, ESTILL COUNTY
PROJECT REVIEW
WX21065009**

I. PROJECT DESCRIPTION

The Estill County Water District #1 (“ECWD”) is requesting a Fund F loan in the amount of \$2,399,450 for the System Improvement and Meter Replacement project. This project will implement improvements designed to help reduce unaccounted for water in the system. It will install flow metering and backflow prevention devices, develop a hydraulic model, and relocate or replace five substandard existing creek crossings. The ECWD has taken an active approach to minimizing unaccounted for water loss through pump stations and telemetry upgrades, valve replacements, installation of test meter assemblies within the system, utilization of leak detection services, and purchase of a hydraulic model for the system. The scope of work also includes purchase and installation of new residential meters throughout the service area. On site testing indicates that the current meters are rapidly reaching the end of the useful life and inaccurate in measuring low "trickle" flows.

The ECWD is a PSC regulated system serving approximately 3,800 residential and commercial customers in Estill County. All rate changes related to retail and water purchase are subject to PSC approval.

II. PROJECT BUDGET

	<u>Total</u>
Administrative Expenses	\$ 65,000
Legal Expenses	25,000
Land, Easements	10,000
Engineering Fees – Design	106,950
Engineering Fees – Construction	41,550
Engineering Fees – Inspection	106,000
Engineering Fees – Other	20,000
Construction	2,300,000
Contingency	199,950
Other	25,000
Total	<u>\$ 2,899,450</u>

III. PROJECT FUNDING

	Amount	%
KIA Fund F Loan	\$ 2,399,450	83%
ARC Grant	500,000	17%
Total	\$ 2,899,450	100%

IV. KIA DEBT SERVICE

Construction Loan	\$ 2,399,450
Principal Forgiveness	1,000,000
Amortized Loan Amount	\$ 1,399,450
Interest Rate	0.50%
Loan Term (Year)	30
Estimated Annual Debt Service	\$ 50,293
Administrative Fee (0.25%)	3,499
Annual Debt Service	\$ 53,791

V. PROJECT SCHEDULE

Bid Opening	April 2020
Construction Start	May 2020
Construction Stop	October 2020

VI. CUSTOMER COMPOSITION AND RATE STRUCTURE

A) Customers

Customers	Current
Residential	3,600
Commercial	215
Total	3,815

B) Rates

	Current	Prior	Prior	Prior
Date of Last Rate Increase	08/22/19	08/20/18	11/07/17	09/18/17
Minimum 2,000 Gallons	\$21.58	\$21.58	\$21.18	\$18.98
Next 3,000 Gallons	10.53	10.53	10.33	9.26
Next 5,000 Gallons	10.31	10.31	10.11	9.06
Water Loss Control Program Surcharge	3.54			
Cost for 4,000 gallons	\$46.18	\$42.64	\$41.84	\$37.50
Increase %	8.3%	1.9%	11.6%	
Affordability Index (Rate/MHI)	1.8%	1.7%	1.7%	1.5%

VII. DEMOGRAPHICS

Based on current Census data from the American Community Survey 5-Year Estimate 2013-2017, the Utility's service area population was 9,378 with a Median Household Income (MHI) of \$30,080. The median household income for the Commonwealth is \$46,535. The ECWD's disadvantaged community status will qualify the project for a 30 year term at 0.5% interest rate and \$1,000,000 in principal forgiveness.

Year	Population		County Unemployment	
	County	% Change	Date	Rate
1980	14,495		June 2005	6.7%
1990	14,614	0.8%	June 2010	12.7%
2000	15,307	4.7%	June 2015	6.1%
2010	14,672	-4.1%	June 2019	5.6%
Current	14,382	-2.0%		
Cumulative %		-0.8%		

VIII. 2019 CAPITALIZATION GRANT EQUIVALENCIES

Additional Subsidization – This project qualifies for additional subsidization. Principal forgiveness of 50% of the assistance amount, not to exceed \$1,000,000 will be credited to the loan balance upon release of liens on all contracts and disbursement of the final draw request by KIA to the borrower.

IX. FINANCIAL ANALYSIS

Financial information was obtained from the audited financial statements for the years ended December 31, 2016 through December 31, 2018. ECWD omitted to report GASB 68 - Accounting and Financial Reporting for Pensions and GASB 75 - Other Postemployment Benefit in 2016 and 2017. The non-cash impact of pension and OPEB liabilities had been removed from 2018 operating expenses. Percentage references in the History section below were based on whole dollar amounts and not the rounded amounts presented.

HISTORY

Total revenues went up 20.3% from \$1.57 million in 2016 to \$1.89 million in 2018 due to the surcharges collected for water loss control program while operating expenses increased 16.0% from \$1.47 million to \$1.70 million during the same period. A total of \$74,200 non-recurring expenses associated with past-due audit fees, legal fees for PSC approval of water loss surcharge, and unplanned maintenance and repair work had been removed from the projections in order to more objectively present ECWD's financial position. The debt service, replacement, and depreciation reserve accounts were underfunded by \$310,000 as of October 31, 2019. The debt coverage ratio was 0.4, 0.4, and 0.8 for 2016, 2017, and 2018 respectively.

The balance sheet reflected a current ratio of 1.2, debt to equity ratio of 1.8, 42.4 days sales in accounts receivable, and 0.7 months of operating expenses in unrestricted cash.

PROJECTIONS

Projections are based on the following assumptions:

- 1) The monthly water loss surcharge will be discontinued once the goal of the water loss control program is achieved with the help of this loan. However, the revenue decrease will be offset by the savings of water purchase cost.
- 2) ECWD will set aside \$45,000 annually for 7 years to replenish the underfunded reserve accounts, subject to KIA annual administrative compliance monitoring.
- 3) Expenses will increase 2% each year for inflation.
- 4) Debt service coverage is 1.2 in 2022 when full year principal and interest repayments begin.

Based on the pro forma assumptions, the utility shows adequate cash flow to repay the KIA Fund F loan.

REPLACEMENT RESERVE

The replacement reserve will be 5% (\$120,000 total) of the final amount borrowed (prior to principal forgiveness, if any) to be funded annually (\$6,000 yearly) each December 1 for 20 years and maintained for the life of the loan.

X. DEBT OBLIGATIONS

	Outstanding	Maturity
Citizens Guaranty Promissory Note	\$ 241,440	2029
RD Bonds 2018 Issue	4,100,693	2058
Total	\$ 4,342,133	

XI. CONTACTS

Legal Applicant	
Name	Estill County Water District #1
Address	76 Cedar Grove Road Irvine, KY 40336
County	Estill
Authorized Official	Blain Click
Phone	(606) 723-3795

Project Contact - Applicant	
Name	Audrea Miller
Representing	Estill County Water District #1
Address	76 Cedar Grove Road Irvine, KY 40336
Phone	(606) 723-3795
Email	a.miller@estillcountywater.com

Project Administrator	
Name	Karyn Leverenz
Organization	Bluegrass Area Development District
Address	699 Perimeter Drive Lexington, KY 40517
Phone	(859) 269-8021
Email	kleverenz@bgadd.org

Consulting Engineer	
Name	Robert Alan Bowman
Firm	Bell Engineering
Address	2480 Fortune Drive Stanford, KY 40484
Phone	(606) 365-2534
Email	abowman@hkbell.com

XII. RECOMMENDATIONS

KIA staff recommends approval of the loan with the standard conditions.

**ESTILL COUNTY WATER DISTRICT #1
FINANCIAL SUMMARY (DECEMBER YEAR END)**

	<u>Audited</u> <u>2016</u>	<u>Audited</u> <u>2017</u>	<u>Audited</u> <u>2018</u>	<u>Projected</u> <u>2019</u>	<u>Projected</u> <u>2020</u>	<u>Projected</u> <u>2021</u>	<u>Projected</u> <u>2022</u>	<u>Projected</u> <u>2023</u>
Balance Sheet								
Assets								
Current Assets	269,775	283,468	354,109	354,082	386,798	395,765	405,429	411,504
Other Assets	8,993,620	8,554,723	8,309,017	7,773,279	10,399,578	10,017,747	9,638,704	9,245,303
Total	9,263,395	8,838,191	8,663,126	8,127,361	10,786,376	10,413,512	10,044,133	9,656,807
Liabilities & Equity								
Current Liabilities	386,966	333,895	306,418	312,085	368,058	331,282	336,963	342,903
Long Term Liabilities	4,178,791	4,204,188	5,292,537	5,051,701	6,297,148	6,183,920	6,069,112	5,952,464
Total Liabilities	4,565,757	4,538,083	5,598,955	5,363,786	6,665,206	6,515,203	6,406,075	6,295,367
Net Assets	4,697,638	4,300,108	3,064,171	2,763,575	4,121,170	3,898,309	3,638,057	3,361,440
Cash Flow								
Revenues	1,572,899	1,611,195	1,892,791	1,894,661	2,008,553	2,008,553	2,008,553	2,008,553
Operating Expenses	1,466,506	1,514,590	1,701,479	1,690,314	1,707,226	1,730,476	1,748,071	1,766,018
Other Income	(1,038)	(1,305)	272	272	272	272	272	272
Cash Flow Before Debt Service	105,355	95,300	191,584	204,619	301,599	278,349	260,754	242,807
Debt Service								
Existing Debt Service	273,816	253,314	252,039	204,819	204,020	206,618	158,642	158,642
Proposed KIA Loan	0	0	0	0	0	26,896	53,791	53,791
Total Debt Service	273,816	253,314	252,039	204,819	204,020	233,513	212,433	212,433
Cash Flow After Debt Service	(168,461)	(158,014)	(60,455)	(200)	97,579	44,836	48,321	30,374
Ratios								
Current Ratio	0.7	0.8	1.2	1.1	1.1	1.2	1.2	1.2
Debt to Equity	1.0	1.1	1.8	1.9	1.6	1.7	1.8	1.9
Days Sales in Accounts Receivable	45.6	47.9	42.4	42.3	42.3	42.3	42.3	42.3
Months Operating Expenses in Unrestricted Cash	0.0	0.0	0.7	0.8	0.9	1.0	1.0	1.1
Debt Coverage Ratio	0.4	0.4	0.8	1.0	1.5	1.2	1.2	1.1

KENTUCKY INFRASTRUCTURE AUTHORITY
 ANTICIPATED REPAYMENT SCHEDULE
 LOAN #F20-013
 ESTILL COUNTY WATER DISTRICT #1

Original Loan Amount \$ 2,399,450.00
 Principal Forgiveness \$ (1,000,000.00)
 Repayment Amount \$ 1,399,450.00

0.50% Interest
 \$25,146.28 P & I Calculation

Payment Date	Principal Due	Interest Due	Interest Rate	Principal & Interest	Servicing Fee	Credit Due	Total Payment	Principal Balance	R & M Reserve	Total Reserve
12/01/21	\$21,647.65	\$3,498.63	0.50%	\$25,146.28	\$1,749.31	\$0.00	\$26,895.59	\$1,399,450.00	\$6,000.00	\$6,000.00
06/01/22	\$21,701.77	\$3,444.51	0.50%	\$25,146.28	\$1,722.25	\$0.00	\$26,868.53	\$1,377,802.35	\$0.00	\$6,000.00
12/01/22	\$21,756.03	\$3,390.25	0.50%	\$25,146.28	\$1,695.13	\$0.00	\$26,841.41	\$1,356,100.58	\$0.00	\$6,000.00
06/01/23	\$21,810.42	\$3,335.86	0.50%	\$25,146.28	\$1,667.93	\$0.00	\$26,814.21	\$1,334,344.55	\$0.00	\$12,000.00
12/01/23	\$21,864.94	\$3,281.34	0.50%	\$25,146.28	\$1,640.67	\$0.00	\$26,786.95	\$1,312,534.13	\$0.00	\$12,000.00
06/01/24	\$21,919.61	\$3,226.67	0.50%	\$25,146.28	\$1,613.34	\$0.00	\$26,759.62	\$1,290,669.19	\$0.00	\$18,000.00
12/01/24	\$21,974.41	\$3,171.87	0.50%	\$25,146.28	\$1,585.94	\$0.00	\$26,732.22	\$1,268,749.58	\$0.00	\$18,000.00
06/01/25	\$22,029.34	\$3,116.94	0.50%	\$25,146.28	\$1,558.47	\$0.00	\$26,704.75	\$1,246,775.17	\$0.00	\$24,000.00
12/01/25	\$22,084.42	\$3,061.86	0.50%	\$25,146.28	\$1,530.93	\$0.00	\$26,677.21	\$1,224,745.83	\$0.00	\$30,000.00
06/01/26	\$22,139.63	\$3,006.65	0.50%	\$25,146.28	\$1,503.33	\$0.00	\$26,649.61	\$1,202,661.41	\$0.00	\$30,000.00
12/01/26	\$22,194.98	\$2,951.30	0.50%	\$25,146.28	\$1,475.65	\$0.00	\$26,621.93	\$1,180,521.78	\$0.00	\$36,000.00
06/01/27	\$22,250.46	\$2,895.82	0.50%	\$25,146.28	\$1,447.91	\$0.00	\$26,594.19	\$1,158,326.80	\$0.00	\$36,000.00
12/01/27	\$22,306.09	\$2,840.19	0.50%	\$25,146.28	\$1,420.10	\$0.00	\$26,566.38	\$1,136,076.34	\$0.00	\$42,000.00
06/01/28	\$22,361.85	\$2,784.43	0.50%	\$25,146.28	\$1,392.21	\$0.00	\$26,538.49	\$1,113,770.25	\$0.00	\$42,000.00
12/01/28	\$22,417.76	\$2,728.52	0.50%	\$25,146.28	\$1,364.26	\$0.00	\$26,510.54	\$1,091,408.40	\$0.00	\$48,000.00
06/01/29	\$22,473.80	\$2,672.48	0.50%	\$25,146.28	\$1,336.24	\$0.00	\$26,482.52	\$1,068,990.64	\$0.00	\$48,000.00
12/01/29	\$22,529.99	\$2,616.29	0.50%	\$25,146.28	\$1,308.15	\$0.00	\$26,454.43	\$1,046,516.84	\$0.00	\$54,000.00
06/01/30	\$22,586.31	\$2,559.97	0.50%	\$25,146.28	\$1,279.98	\$0.00	\$26,426.26	\$1,023,986.85	\$0.00	\$54,000.00
12/01/30	\$22,642.78	\$2,503.50	0.50%	\$25,146.28	\$1,251.75	\$0.00	\$26,398.03	\$1,001,400.54	\$0.00	\$60,000.00
06/01/31	\$22,699.39	\$2,446.89	0.50%	\$25,146.28	\$1,223.45	\$0.00	\$26,369.73	\$978,757.76	\$0.00	\$60,000.00
12/01/31	\$22,756.13	\$2,390.15	0.50%	\$25,146.28	\$1,195.07	\$0.00	\$26,341.35	\$956,058.37	\$0.00	\$66,000.00
06/01/32	\$22,813.02	\$2,333.26	0.50%	\$25,146.28	\$1,166.63	\$0.00	\$26,312.91	\$933,302.24	\$0.00	\$66,000.00
12/01/32	\$22,870.06	\$2,276.22	0.50%	\$25,146.28	\$1,138.11	\$0.00	\$26,284.39	\$910,489.22	\$0.00	\$72,000.00
06/01/33	\$22,927.23	\$2,219.05	0.50%	\$25,146.28	\$1,109.52	\$0.00	\$26,255.80	\$887,619.16	\$0.00	\$72,000.00
12/01/33	\$22,984.55	\$2,161.73	0.50%	\$25,146.28	\$1,080.86	\$0.00	\$26,227.14	\$864,691.93	\$0.00	\$78,000.00
06/01/34	\$23,042.01	\$2,104.27	0.50%	\$25,146.28	\$1,052.13	\$0.00	\$26,198.41	\$841,707.38	\$0.00	\$78,000.00
12/01/34	\$23,099.62	\$2,046.66	0.50%	\$25,146.28	\$1,023.33	\$0.00	\$26,169.61	\$818,665.37	\$0.00	\$84,000.00
06/01/35	\$23,157.37	\$1,988.91	0.50%	\$25,146.28	\$994.46	\$0.00	\$26,140.74	\$795,565.75	\$0.00	\$84,000.00
12/01/35	\$23,215.26	\$1,931.02	0.50%	\$25,146.28	\$965.51	\$0.00	\$26,111.79	\$772,408.38	\$0.00	\$90,000.00
06/01/36	\$23,273.30	\$1,872.98	0.50%	\$25,146.28	\$936.49	\$0.00	\$26,082.77	\$749,193.12	\$0.00	\$90,000.00
12/01/36	\$23,331.48	\$1,814.80	0.50%	\$25,146.28	\$907.40	\$0.00	\$26,053.68	\$725,919.82	\$0.00	\$96,000.00
06/01/37	\$23,389.81	\$1,756.47	0.50%	\$25,146.28	\$878.24	\$0.00	\$26,024.52	\$702,588.34	\$0.00	\$96,000.00
12/01/37	\$23,448.28	\$1,698.00	0.50%	\$25,146.28	\$849.00	\$0.00	\$25,995.27	\$679,198.53	\$0.00	\$96,000.00
06/01/38	\$23,506.90	\$1,639.38	0.50%	\$25,146.28	\$819.69	\$0.00	\$25,965.97	\$655,750.25	\$0.00	\$102,000.00
12/01/38	\$23,565.67	\$1,580.61	0.50%	\$25,146.28	\$790.30	\$0.00	\$25,936.58	\$632,243.35	\$0.00	\$102,000.00
06/01/39	\$23,624.59	\$1,521.69	0.50%	\$25,146.28	\$760.85	\$0.00	\$25,907.13	\$608,677.68	\$0.00	\$108,000.00
12/01/39	\$23,683.65	\$1,462.63	0.50%	\$25,146.28	\$731.32	\$0.00	\$25,877.60	\$585,053.09	\$0.00	\$108,000.00
06/01/40	\$23,742.86	\$1,403.42	0.50%	\$25,146.28	\$701.71	\$0.00	\$25,847.99	\$561,369.44	\$0.00	\$114,000.00
12/01/40	\$23,802.21	\$1,344.07	0.50%	\$25,146.28	\$672.03	\$0.00	\$25,818.31	\$537,626.58	\$0.00	\$114,000.00
06/01/41	\$23,861.72	\$1,284.56	0.50%	\$25,146.28	\$642.28	\$0.00	\$25,788.56	\$513,824.37	\$6,000.00	\$120,000.00
12/01/41	\$23,921.37	\$1,224.91	0.50%	\$25,146.28	\$612.45	\$0.00	\$25,758.73	\$489,962.65	\$0.00	\$120,000.00
06/01/42	\$23,981.18	\$1,165.10	0.50%	\$25,146.28	\$582.55	\$0.00	\$25,728.83	\$466,041.28	\$0.00	\$120,000.00
12/01/42	\$24,041.13	\$1,105.15	0.50%	\$25,146.28	\$552.58	\$0.00	\$25,698.86	\$442,060.10	\$0.00	\$120,000.00

Payment Date	Principal Due	Interest Due	Interest Rate	Principal & Interest	Servicing Fee	Credit Due	Total Payment	Principal Balance	R & M Reserve	Total Reserve
06/01/43	\$24,101.23	\$1,045.05	0.50%	\$25,146.28	\$522.52	\$0.00	\$25,668.80	\$393,917.74	\$0.00	\$120,000.00
12/01/43	\$24,161.49	\$984.79	0.50%	\$25,146.28	\$492.40	\$0.00	\$25,638.68	\$369,756.25	\$0.00	\$120,000.00
06/01/44	\$24,221.89	\$924.39	0.50%	\$25,146.28	\$462.20	\$0.00	\$25,608.48	\$345,534.36	\$0.00	\$120,000.00
12/01/44	\$24,282.44	\$863.84	0.50%	\$25,146.28	\$431.92	\$0.00	\$25,578.20	\$321,251.92	\$0.00	\$120,000.00
06/01/45	\$24,343.15	\$803.13	0.50%	\$25,146.28	\$401.56	\$0.00	\$25,547.84	\$296,908.77	\$0.00	\$120,000.00
12/01/45	\$24,404.01	\$742.27	0.50%	\$25,146.28	\$371.14	\$0.00	\$25,517.42	\$272,504.76	\$0.00	\$120,000.00
06/01/46	\$24,465.02	\$681.26	0.50%	\$25,146.28	\$340.63	\$0.00	\$25,486.91	\$248,039.74	\$0.00	\$120,000.00
12/01/46	\$24,526.18	\$620.10	0.50%	\$25,146.28	\$310.05	\$0.00	\$25,456.33	\$223,513.56	\$0.00	\$120,000.00
06/01/47	\$24,587.50	\$558.78	0.50%	\$25,146.28	\$279.39	\$0.00	\$25,425.67	\$198,926.06	\$0.00	\$120,000.00
12/01/47	\$24,648.96	\$497.32	0.50%	\$25,146.28	\$248.66	\$0.00	\$25,394.94	\$174,277.10	\$0.00	\$120,000.00
06/01/48	\$24,710.59	\$435.69	0.50%	\$25,146.28	\$217.85	\$0.00	\$25,364.13	\$149,566.51	\$0.00	\$120,000.00
12/01/48	\$24,772.36	\$373.92	0.50%	\$25,146.28	\$186.96	\$0.00	\$25,333.24	\$124,794.15	\$0.00	\$120,000.00
06/01/49	\$24,834.29	\$311.99	0.50%	\$25,146.28	\$155.99	\$0.00	\$25,302.27	\$99,959.86	\$0.00	\$120,000.00
12/01/49	\$24,896.38	\$249.90	0.50%	\$25,146.28	\$124.95	\$0.00	\$25,271.23	\$75,063.48	\$0.00	\$120,000.00
06/01/50	\$24,958.62	\$187.66	0.50%	\$25,146.28	\$93.83	\$0.00	\$25,240.11	\$50,104.86	\$0.00	\$120,000.00
12/01/50	\$25,021.02	\$125.26	0.50%	\$25,146.28	\$62.63	\$0.00	\$25,208.91	\$25,083.84	\$0.00	\$120,000.00
06/01/51	\$25,083.84	\$62.44	0.50%	\$25,146.28	\$31.35	\$0.00	\$25,177.63	\$0.00	\$0.00	\$120,000.00
Totals	\$1,399,450.00	\$109,326.80		\$1,508,776.80	\$54,663.54	\$0.00	\$1,563,440.34			\$120,000.00

Created by K/A on 08/14/2020

EXHIBIT 27

**Detailed Estimate of Acquired Property Classified According
to the Uniform System of Accounts For
Class A/B Water Districts and Associations**

Account No.	Account Description	Estimate
331	Transmission and Distribution Mains	\$1,020,420
Total		\$1,020,420