

**COMMONWEALTH OF KENTUCKY**  
**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

<b>ELECTRONIC APPLICATION OF SOUTH</b>	)	
<b>WOODFORD COUNTY WATER DISTRICT</b>	)	
<b>FOR AUTHORIZATION TO EXECUTE AN</b>	)	
<b>ASSISTANCE AGREEMENT WITH THE</b>	)	
<b>KENTUCKY INFRASTRUCTURE</b>	)	<b>CASE NO. 2023-00322</b>
<b>AUTHORITY AND FOR A CERTIFICATE OF</b>	)	
<b>PUBLIC CONVENIENCE AND NECESSITY</b>	)	
<b>FOR CERTAIN SYSTEM IMPROVEMENTS</b>	)	

**VERIFIED APPLICATION**

Pursuant to KRS 278.020(1), KRS 278.300, and 807 KAR 5:001, South Woodford County Water District (“South Woodford” or “the District”) applies to the Public Service Commission (“Commission”) for an Order authorizing South Woodford to execute an assistance agreement with the Kentucky Infrastructure Authority (“KIA”) to borrow an amount not to exceed \$2,230,000 and granting a certificate of public convenience and necessity to purchase and install approximately 1,765 radio read water meters and related equipment and to construct a booster pump station to replace an existing pump station (collectively “the Proposed Facilities”). South Woodford requests that the Commission render a decision on this Application no later than **March 11, 2024**.

In support of its Application,<sup>1</sup> South Woodford provides the following:

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<sup>1</sup> To facilitate the Commission’s initial review of this Application, South Woodford has attached to this Application a “Filings Requirements List” that consists of six pages, lists each statutory and regulatory requirement for an application for a certificate of public convenience and necessity and authorization to issue evidences of indebtedness, identifies the exhibit or paragraph that satisfies the requirement, and contains a hyperlink to that exhibit or paragraph.

## A. General Information

1. The full name and post office address of South Woodford is South Woodford County Water District, 117-D Crossfield Drive, Versailles, Kentucky 40383. Its e-mail address is office@southwoodfordwater.com.

2. Copies of all orders, pleadings and other communications related to this proceeding<sup>2</sup> should be directed to:

Dale Gatewood  
General Manager  
117-D Crossfield Drive  
Versailles, Kentucky 40383  
(859) 873-1308  
Khcg79@aol.com

David W. Hudson  
Acting Chairman  
117-D Crossfield Drive  
Versailles, Kentucky 40383  
(859) 873-1308  
david@lccpa.com

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

3. South Woodford is not a corporation, limited liability company or limited partnership. It has no articles of incorporation or partnership agreements.

4. South Woodford is a water district created under the provisions of KRS Chapter 74. Woodford County Court created South Woodford County Water District pursuant to an order entered August 19, 1963. A copy of this Order is attached as **Exhibit 1** of this Application.

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<sup>2</sup> On September 22, 2023 pursuant to 807 KAR 5:001, Section 8, South Woodford notified the Commission of its election of the use of electronic filing procedures for this proceeding.

5. As of December 31, 2022, South Woodford provided retail water service to approximately 1,729 customers in the southern portion of Woodford County, Kentucky.<sup>3</sup>

6. South Woodford has no water production facilities. It purchases its total water requirements from the City of Versailles, Kentucky.

7. A copy of the resolution of South Woodford's Board of Commissioners authorizing the filing of this application is attached as **Exhibit 2** of this Application.

### **B. Proposed Purchase and Installation of AMR Equipment**

8. South Woodford proposes to purchase a total of 1,765 Sensus iPerl water meters (1,160 5/8-inch x 3/4-inch meters and 605 one-inch meters) and transceivers to replace most of its existing water meters. It further proposes to purchase the equipment and computer software necessary to establish an automated meter reading ("AMR") system.

9. Meter Equipment. The Sensus iPerl meter is a solid-state electromagnetic water meter that measures water flow based on the voltage generated when water passes through a magnetic field in a section of insulating pipe. This voltage is proportional to the flow rate over a much wider range than any other flow metering technology. Temperature variation, vibration, particulates, air bubbles, and flow disturbances have no effect on accuracy. In contrast to a mechanical meter that uses rotating turbines, it has no moving parts and thus greater durability. It can measure flow even with low pressure, which is difficult for mechanical flow sensors. Unlike ultrasonic water meters, it provides continuous measurement of water flow, allowing for the accurate capture of intermittent consumption of water. It can measure water flows as low as 0.1 gallons per minute, thus allowing for greater measurement accuracy. It exceeds the most recent

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<sup>3</sup> *Annual Report of South Woodford County Water District to the Public Service Commission of the Commonwealth of Kentucky for the Calendar Year Ended December 31, 2022 ("2022 Annual Water Report")* at Ref Pages 1 and 9.

revision of ANSI/AWWA Standard C-700 and C-710 for accuracy and pressure loss requirements. The iPerl meter is made of composite alloy and contains no metal material. The meters are fully compliant with NSF/ANSI 61, which establishes the minimum requirements for the control of potential adverse human health effects from products that contact drinking water. The manufacturer's description of the iPerl meter and its specifications are found at **Exhibit 3** to this Application.

10. Transceiver. Each meter will be equipped with a Sensus SmartPoint 520M, a radio device that can receive input from and send output to a mobile or fixed-base collection device. The device obtains hourly readings and can monitor continuous flow over a programmable period, alerting the utility to leak conditions. In addition, it stores up to 840 consumption intervals (35 days of hourly consumption), providing the utility with the ability to extract detailed usage profiles for consumer information and dispute resolution. Initially, communications with the meters will be through vehicle drive-by but can be migrated to a fixed-base advance meter infrastructure system. A detailed description of the transceiver is attached as **Exhibit 4** of this Application.

11. Vehicle Gateway Base Station. The proposed AMR equipment includes a vehicle gateway base station ("VGB") and specialized software to permit remote meter reading. The VGB is portable and can be easily placed in a utility vehicle. When connected to a portable computing device loaded with specialized software, it collects meter data as the vehicle travels by sending an alert signal to the meter's transceiver. Upon receiving the alert, the transceiver transmits meter data to the VGB. As the meter reader drives along a street or road, the portable computing device will automatically display nearby meters, receive and store the data transmitted from those meters, and indicate which meters are being read and which remain to be read. The data can be transferred

to the District's billing program when the vehicle returns to the District's office. A description of the VGB and the specialized software is attached as **Exhibits 5 and 6** of this Application.

12. Installation. The selected vendor will replace the existing meters and install all AMR equipment. The meter replacement and the installation of AMR equipment are expected to be completed within 270 days of the issuance of a certificate of public convenience and necessity.<sup>4</sup>

13. Warranty. The iPerl meter is warranted to perform to its stated accuracy levels for 20 years. The iPerl meter and SmartPoint 520M transceiver are warranted to be free from defects in material and workmanship for 20 years. Their lithium batteries are similarly warranted for 20 years. The VGB equipment is warranted to be free from defects in material and workmanship for one year. A copy of the manufacturer's warranty is attached as **Exhibit 7** to this Application.

14. Benefits of proposed AMR System. The proposed installation of the AMR equipment will provide the following benefits to the District.

A. The deployment of the AMR system will produce annual savings of approximately \$30,000 in reduced meter reading expenses. Prior to 2023, South Woodford outsourced its meter reading function to a contractor at the rate of \$1.80 per meter. Since 2023 it has, as a temporary measure, used two contract employees to manually read its meters. Each employee is assigned a vehicle and spends approximately 40 hours per month reading meters, for a total of 80 hours each month. After the installation of the proposed metering equipment, a single contractor employee is expected to spend 24 hours performing meter reading each month.

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<sup>4</sup> Exhibit 13 at 3. The contract bid specifications provide that the selected vendor will install 1,141 5/8-inch meters and 596 1-inch meters. The remaining meters will be held for later use.

B. It will increase the District's revenues by recording water usage that previously went unmeasured because of a malfunctioning meter or a meter's inability to measure low water flows.

C. It creates a safer work environment by eliminating meter reading visits to areas with fenced yards or fields, encounters with dogs or other animals, and hazardous landscaping. It eliminates the risks associated with constant travel on rural roads and the frequent need to park on the shoulder of narrow county roads and exit and re-enter a vehicle in the face of traffic to obtain meter readings.

D. It reduces the need to issue estimated bills. Currently, if a meter cannot be timely read due to inclement weather, such as snow, ice, or freezing rain, or the inaccessibility of the meter, South Woodford will issue an estimated monthly bill. Once installed, the proposed metering equipment will enable South Woodford to read meters that previously could not be accessed.

E. It eliminates human errors associated with manual meter reading.

F. By reducing the time to read system meters from 12 days to 3 days, it permits a more accurate picture of system water usage and increases the District's ability to promptly identify major water breaks and leaks and reduce its unaccounted-for water loss.

G. It will enhance customer service by alerting the District if a customer exceeds a threshold water usage set by the utility and allowing the District to respond to customer issues more quickly and with more accurate water usage information. It will provide a significant amount of customer usage data on the hour, day, and week, which will be useful to customers and the utility.

15. Reasons for Meter Replacement. The proposed replacement of South Woodford’s current meters is necessary due to their age and poor condition. At least 875 of the District’s approximately 1,700 meters have been in service since on or before 1988. South Woodford estimates that 800 of the remaining meters were placed in service between 1988 and 2010. Given the poor state of its meter testing records, the District is unable to confirm the last test date for most meters presently in service but suspects that most are not in compliance with the testing requirements set forth in 807 KAR 5:066, Section 16(1). A recent audit of South Woodford meters discovered more than 100 active meters had ceased measuring water flow.

16. As shown in Table 1 below, South Woodford has experienced an increasing level of unaccounted-for water loss. During the period from 2017 to 2022, it experienced an average unaccounted-for water loss rate of 28.06 percent, well above the permissible level of 15 percent.<sup>5</sup> For every three gallons of water that the District purchased, only two gallons were actually sold.

<b>Table 1</b>	
<b>Year</b>	<b>Unaccounted-For Water (% of Total Water Purchased)</b>
2017	20.5793
2018	27.6003
2019	25.7002
2020	29.6292
2021	32.9239
2022	31.9363

The poor condition and age of the District’s current meters have contributed to the District’s excessive water loss problems. The American Water Works Association’s M36 Manual notes that “[c]ustomer meters that inaccurately measure the volumes passing through them can be a major

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<sup>5</sup> See 807 KAR 5:066, Section 6(3) provides: “Except for 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 produced and purchased, excluding water used by a utility in its own operations.”

source of apparent [water] loss in drinking water systems.”<sup>6</sup> The Commission has found that “[a]s meters age, especially after reaching an age in excess of ten years their accuracy is questionable and may read up to 20 percent below the actual water that is consumed.”<sup>7</sup>

17. In mid-2022 the District initiated a review of potential replacements for its existing metering equipment. It examined metering equipment from several meter manufacturers, including Sensus, Itron, and Badger Meter, and contacted several metering equipment vendors and neighboring water utilities. It eventually selected the iPerl meter as the replacement meter. It found the meter to be more accurate at measuring low water flows than other types of meters; was widely used by Kentucky water utilities;<sup>8</sup> and was viewed favorably by those water utilities. In reaching its decision, significant weight was given to the City of Versailles’ selection of the iPerl meter to replace the City’s entire meter stock. The District considered the use of the same type of meter as the City of Versailles would allow for an easier transition to the City’s operation of the District’s distribution system should the District enter a management contract with the City or transfer ownership of its system to the City.

18. In accordance with KRS 424.260, South Woodford caused the publication of an advertisement for bids for the furnishing and installation of AMR Equipment in the November 22, 2023 edition of the *Woodford Sun*. Proof of publication of this advertisement is attached to this

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<sup>6</sup> American Water Works Association, Manual of Water Supply Practices M36, *Water Audits and Loss Control Programs* 120 (4th ed. 2016).

<sup>7</sup> Kentucky Public Service Commission, *Confronting the Problems Plaguing Kentucky’s Water Utilities* (Nov. 2019), App. A at 2.

<sup>8</sup> Among the water utilities that have installed iPerl meters are: Bardwell Utilities, Cannonsburg Water District, City of Danville, City of Florence, City of Greenup, City of Leitchfield, City of Mayfield, City of Olive Hill, City of Tompkinsville, Farmdale Water District, Fulton Public Works, Greenville Utility Commission, Grayson Utility Commission, Lake Village Water District, Montgomery County Water District No. 1, Muhlenberg County Water District, North Shelby Water Company, Paintsville Utilities, Parksville Water District, Sandy Hook Water District, South Logan Water Association, and Wurtland Water Works.



Application as **Exhibit 8**. Under the terms of the advertisement for bids, a bidder may withdraw its bid after **March 12, 2024**. A copy of the certified bid tabulation is attached as **Exhibit 9**.

19. The bid of \$742,798.50 of C.I. Thornburg Company, Inc., of Huntington, West Virginia, was the only submitted bid. A copy of the Project Engineer's recommendation is attached as **Exhibit 10** of this Application.

20. On January 9, 2024, South Woodford's Board of Commissioners adopted a resolution awarding a contract for the purchase and installation of AMR equipment contingent upon the Commission authorizing the District to execute an assistance agreement with the KIA for KIA Loan B22-002 to borrow \$2,230,000 and issuing a certificate of public convenience and necessity for the purchase and installation of such equipment. This resolution is attached as **Exhibit 11** of this Application.

21. The proposed AMR equipment will be located throughout the District's service territory, which consists of the southern portions of Woodford County, Kentucky. A map depicting South Woodford's territory is attached as **Exhibit 12** of this Application.

22. A detailed description of and the specifications for the AMR equipment are found at **Exhibit 3-4, Exhibits 5-6, and Exhibit 13** to this Application.

23. South Woodford is not aware of any franchises, permits, or regulatory approvals required for the proposed purchase and installation of the AMR equipment.

24. The proposed purchase and installation of the AMR Equipment does not require the approval of the Kentucky Division of Water ("KDOW"). Attached as **Exhibit 14** to this Application is an electronic mail message to the Project Engineer from the KDOW's Infrastructure Branch advising that KDOW approval of the purchase and replacement of water meters is not required.

25. The proposed purchase and installation of the AMR equipment does not require the acquisition of any parcels of land or easements.

26. The total estimated cost for the purchase and installation of the proposed AMR equipment is \$858,738.50. An itemized estimate of this cost is attached as **Exhibit 25**. The District proposes to use a portion of the proceeds of KIA Loan B22-002 to finance this cost.

27. There is no annual cost for the operation of the proposed AMR equipment. The District expects a decrease in annual meter reading costs of approximately \$30,573.72 after installation of the metering equipment.

28. The proposed purchase and installation of AMR Equipment will not compete with the facilities of any other public utility. It will not result in the wasteful duplication of utility facilities or inefficient investment.

### **C. Kentucky 33 Pump Station Replacement**

29. South Woodford proposes replacing an existing underground pump station located in Woodford County, Kentucky, near the intersection of Kentucky Highway 33 and Kentucky Highway 2113. This pump station, which serves the eastern portion of the District's territory, has two pumps that have an individual pumping capacity of 500 gallons of water per minute. Constructed in 1995, the pumping station is at or near the end of its useful service life. The pumps and the control mechanisms are in poor condition and have a high risk of failure. The station's metal housing is deteriorating and presents an increased risk of structural collapse or ground water flooding. If it remains in operation, major repairs within the next five years will be necessary. Photographs of the existing station are attached as **Exhibit 15** to this Application. The estimated salvage value of the existing station is \$10,000.

30. In place of the existing pump station, the District proposes to construct an above ground pump station. The replacement station will house two variable frequency drive pumps. Each pump will have a maximum pumping capacity of 750 gallons per minute. These pumps have an alternating current motor drive that controls speed and torque by varying the frequency of the input electricity and allows for more efficient energy consumption. The two pumps are designed to serve a planned water storage tank intended to address low pressure problems. To allow for remote monitoring and control the pump station's operation, it will have an automatic control and monitoring system that is integrated into the District's Supervisory Control and Data Acquisition ("SCADA") system. As the pump station is above-ground, many of the safety concerns present in the existing underground pump station, which is considered a confined space and subject to stricter safety regulations, will be avoided. The proposed pump station has an estimated useful life of 30 years.

31. To facilitate the construction of the proposed pump station, the District has acquired a 2,953 square foot tract of land that immediately adjoins the tract on which the current pump station sits. The tract's owners agreed to transfer title to the District in exchange for the tract of land on which the current pump station sits. Upon the replacement station's completion, the current pump station will be demolished, and the site backfilled and restored to its prior condition. The District acquired the current pump station site in 1992 for \$8,120. A description of the acquired tract and a plat survey of the area are attached to this Application as **Exhibit 16** and **Exhibit 17**, respectively.

32. The plans for the proposed pump station are attached to this Application as **Exhibit 18**. Its contract specifications are attached to this Application as **Exhibit 19**.

33. The KDOW has reviewed the plans and specifications for the proposed pump station and has approved them with respect to sanitary features of design. A copy of the letter in which KDOW stated its approval is attached as **Exhibit 20** of this Application.

34. Aside from the property acquisition described above, no property or easement acquisition is required for the construction of the proposed pump station nor are any permits for the excavation of public rights-of-way under the jurisdiction of the Kentucky Transportation Cabinet or Woodford County Fiscal Court required.

35. A description of the proposed pump station's location is attached as **Exhibit 16** to this Application. Maps depicting the location of the proposed pump station are attached as **Exhibit 21** of this Application.

36. Given its funding source, no statute or regulation requires the preparation of an engineering report for the proposed pump station, and none was prepared.

37. In accordance with KRS 424.260, South Woodford caused the publication in the November 22, 2023 edition of the *Woodford Sun* of an advertisement for bids for a contract to construct the proposed pump station and to demolish the existing pump station. Proof of publication of this advertisement is attached to this Application as **Exhibit 8**. Under the terms of the advertisement for bids, a bidder may withdraw its bid after **March 12, 2024**. A copy of the certified bid tabulation is attached as **Exhibit 22** to this Application.

38. The District received four bids on the contract to construct the proposed pump station and demolish the existing pump station. The lowest bid was a bid of \$680,400 from United Pipeline, Inc. of Tompkinsville, Kentucky. Haworth-Meyer-Boleyn Professional Engineers, Inc, the Project Engineer, reviewed the submitted bids and determined that United Pipeline, Inc. was

qualified to perform the contract work and recommended its bid be accepted. A copy of the Project Engineer's recommendation is attached as **Exhibit 10**.

39. On January 9, 2024, South Woodford's Board of Commissioners adopted a resolution awarding a contract for construction of the proposed pump station and demolition of the current pump station contingent upon the Commission authorizing the District to execute an assistance agreement with the KIA for KIA Loan B22-002 to borrow \$2,230,000 and issuing a certificate of public convenience and necessity for such construction. This resolution is attached as **Exhibit 23** of this Application.

40. The estimated annual cost of operating the proposed pump station is \$22,500 and will consist entirely of the cost for electric power. The total estimated cost of the proposed pump station is \$887,710. An itemized estimate of this cost is attached as **Exhibit 24**. The District proposes to use a portion of the proceeds of KIA Loan B22-002 to finance this cost.

41. The proposed pump station will not compete with those of another public utility. Its construction will not result in the wasteful duplication of utility facilities or inefficient investment.

#### **D. Authorization to Execute Assistance Agreement**

42. To finance the cost of the Proposed Facilities, South Woodford proposes to enter an assistance agreement with KIA for KIA Loan B22-002 to borrow an amount not to exceed \$2,230,000 from the State Infrastructure Revolving Fund ("Fund B"). The proposed loan will bear interest at a rate of two percent per annum and must be repaid over a period not to exceed 20 years from the date of the last draw of funds. Interest on the proposed loan will accrue from the time that South Woodford begins drawing funds from KIA. The proposed loan will be secured by a pledge of South Woodford's revenues. A loan servicing fee of 0.20 percent of the outstanding loan balance

will also be assessed semi-annually. An amortization schedule for the proposed loan is attached to this Application as **Exhibit 25**. Payments on the loan’s principal will not begin until after the date of the last draw of funds.

43. A copy of the minutes of the April 7, 2022 meeting in which the KIA Board of Directors approved the proposed loan is attached as **Exhibit 26** of this Application. On April 8, 2022, KIA issued a Conditional Commitment Letter, a copy of which is attached as **Exhibit 27** of this Application, setting forth additional details regarding the proposed loan.

44. KRS 224A.100 requires the Capital Projects and Bond Oversight Committee of the Kentucky General Assembly (“the Committee”) to review and approve the proposed loan. A copy of the minutes of the May 19, 2022 meeting in which the Committee approved the proposed loan is attached as **Exhibit 28** of this Application.

45. Among the conditions set forth in KIA’s Conditional Commitment Letter was a demonstration of South Woodford’s intent “to increase revenues as necessary and authorized by the PSC [Public Service Commission] to meet the loan requirements over the life of the loan.” KIA Staff had found that South Woodford should, by January 1, 2024, increase its rates to produce additional annual revenues of at least \$50,000 to meet its operating expenses and maintain a debt service ratio of 1.1. Since the issuance of the Conditional Commitment Letter, South Woodford has applied to the Public Service Commission and has been granted an adjustment of rates for water service that is expected to produce additional annual revenues of \$73,000.<sup>9</sup>

46. In the Conditional Commitment Letter, KIA further required that all loan conditions be satisfied by April 8, 2023. KIA subsequently extended the time in which South Woodford had

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<sup>9</sup> *Electronic Application of South Woodford Water District for a Rate Adjustment Pursuant to 807 KAR 5:076, Case No. 2022-00035, Order (Ky. PSC Jan. 17, 2023).*

to meet all loan conditions until December 8, 2023 and then to June 8, 2024. The letters extending the time to satisfy all loan conditions are attached as **Exhibit 29** and **Exhibit 30** to this Application.

47. KIA Loan B22-002 was originally intended to finance not only the Proposed Facilities, but also the rehabilitation of two water storage tanks and the establishment of a system of leak detection meters. The estimated total cost of all improvements was \$2,705,000.<sup>10</sup> After the KIA Board's approval of KIA Loan B22-002, South Woodford was awarded two Cleaner Water Grants totaling \$657,728<sup>11</sup> for the storage tank rehabilitation. Because of the need for urgent action on these storage tanks, the storage tank rehabilitation projects were severed from the other projects that KIA Loan B22-002 was to finance. As a result, the total estimated cost of the remaining projects related to the Proposed Facilities is approximately \$475,432 less than the approved loan amount. South Woodford requests authorization to execute an Assistance Agreement for **the full loan amount** with the understanding that no proceeds from KIA Loan B22-022 will be used for any expenditure except those identified in this application until the Commission has expressly authorized such use.

48. A description of South Woodford's water system and its property, stated at original cost by accounts, is contained in South Woodford's Annual Report to the Public Service Commission for the Year Ending December 31, 2022 ("2022 Annual Water Report"), a copy of which is attached to this Application as **Exhibit 31**.

49. South Woodford does not propose to issue any stock or bonds.

50. No proceeds from the proposed assistance agreement will be used to refund outstanding obligations.

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<sup>10</sup> See Exhibit 27 at 7.

<sup>11</sup> These grants were Cleaner Water Grant No. 21CWW222 in the amount of \$225,458 and Cleaner Water Grant No. 22CWW284 in the amount of \$432,270.

51. A copy of South Woodford's written notification to the State Local Debt Officer is attached as **Exhibit 32**.

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

a. For the 12-month period ending December 31, 2022, South Woodford had less than \$5,000,000 in gross annual revenues.

b. South Woodford's most recent annual report on file with the Commission for its water operations covers the 12-month period ending December 31, 2022. A copy of South Woodford's 2022 Annual Water Report is attached as **Exhibit 31** of this Application.

c. No material changes have occurred in South Woodford's financial condition since December 31, 2022.

53. South Woodford has no trust deeds or mortgages.

54. A map of the area in which the proposed meter equipment will be located is attached as **Exhibit 12** of this Application and maps showing the location of the proposed pump station are attached as **Exhibit 21** of this Application.

55. A detailed estimate of the acquired property, arranged according to the Uniform System of Accounts for Water Districts, is attached to this Application as **Exhibit 33** of this Application.

56. South Woodford's execution of the proposed assistance agreement with KIA to finance the cost of the Proposed Facilities is for a lawful objective within South Woodford's corporate purposes, is necessary, appropriate for and consistent with South Woodford's proper performance of its service to the public and will not impair South Woodford's ability to perform that service and is reasonably necessary and appropriate for such purpose.



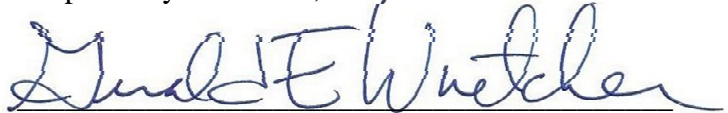
**E. Requested Relief**

**WHEREFORE**, South Woodford County Water District requests that the Commission:

1. Place this Application at the head of the Public Service Commission's docket as KRS 278.300(2) requires;
2. Enter an Order:
  - A. Authorizing South Woodford to enter and execute an assistance agreement with KIA to borrow \$2,230,000 to finance the proposed purchase and installation of metering equipment and the construction of the proposed pump station; and
  - B. Granting a Certificate of Public Convenience and Necessity to South Woodford for the Proposed Facilities;
3. Enter an Order granting the requested relief without holding an evidentiary hearing in this matter and no later than **March 11, 2024**; and
4. Grant all such other relief to which South Woodford may be entitled.

Dated: January 31, 2024

Respectfully submitted,



Gerald E. Wuetcher  
Stoll Keenon Ogden PLLC  
300 West Vine St. Suite 2100  
Lexington, Kentucky 40507-1801  
Telephone: (859) 231-3017  
Fax: (859) 259-3517  
gerald.wuetcher@skofirm.com

*Counsel for South Woodford County Water District*



**CERTIFICATE OF SERVICE**

In accordance with 807 KAR 5:001, Section 8, and the Public Service Commission's Order of July 22, 2021 in Case No. 2020-00085, I certify that this document was submitted electronically to the Public Service Commission on January 31, 2024 and that there are currently no parties that the Public Service Commission has excused from participation by electronic means in this proceeding.

A handwritten signature in blue ink that reads "Gerald E. Wuetcher". The signature is written in a cursive style with a horizontal line underneath the name.

Gerald E. Wuetcher

# **FILING REQUIREMENTS**

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

**PURCHASE AND INSTALLATION OF METERING EQUIPMENT**

Source Authority	Requirement	Location
807 KAR 5:001, § 14(1)	Applicant's name, mailing address and e-mail address	<a href="#">Page 2, Para 1</a>
807 KAR 5:001, § 14(1)	Statutory Reference – KRS 278.020	<a href="#">Page 1</a>
807 KAR 5:001, § 4(3)	Signature of Applicant's Attorney	<a href="#">Page 17</a>
807 KAR 5:001, § 4(3)	Name, Address, Telephone Number, Fax Number, and e-mail address of Applicant's Attorney	<a href="#">Page 17</a>
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	<a href="#">Page 2, Para 3</a> <b>Not Applicable</b>
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	<a href="#">Page 2, Para 3</a> <b>Not Applicable</b>
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	<a href="#">Page 2, Para 3</a> <b>Not Applicable</b>
807 KAR 5:001, § 15(2)(a)	The facts relied upon to show that the public convenience and necessity requires the proposed construction	<a href="#">Pages 3-8, Paras 8-17</a>
807 KAR 5:001, § 15(2)(b)	Copies of franchises or permits for the proposed construction or extension	<a href="#">Page 9, Paras 23-24</a> <a href="#">Exhibit 14</a> <b>Not Applicable</b>
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	<a href="#">Page 5, Para 12</a> <a href="#">Page 9, Para 21</a> <a href="#">Page 10, Para 28</a> <a href="#">Exhibit 12</a>
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	<a href="#">Page 9, Para 21</a> <a href="#">Exhibit 12</a>

Source Authority	Requirement	Location
807 KAR 5:001, § 15(2)(d)(2)	Plans and specifications and drawings of the proposed plant, equipment, and facilities	<a href="#">Pages 3-5, Paras 9-11</a> <a href="#">Page 9, Para 22</a> <a href="#">Exhibit 3, Exhibit 4,</a> <a href="#">Exhibit 5, Exhibit 6,</a> <a href="#">Exhibit 13</a>
807 KAR 5:001, § 15(2)(e)	The manner in detail in which the Applicant proposes to finance the proposed construction or extension.	<a href="#">Page 10, Para 26</a>
807 KAR 5:001, § 15(2)(f)	An estimated annual cost of operation after the proposed facilities are placed into service	<a href="#">Page 10, Para 27</a>
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	<a href="#">Exhibit 9, Exhibit 13</a>

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

**CONSTRUCTION OF REPLACEMENT PUMP STATION**

<b>Source Authority</b>	<b>Requirement</b>	<b>Location</b>
807 KAR 5:001, § 14(1)	Applicant's name, mailing address and e-mail address	<a href="#">Page 2, Para 1</a>
807 KAR 5:001, § 14(1)	Statutory Reference – KRS 278.020	<a href="#">Page 1</a>
807 KAR 5:001, § 4(3)	Signature of Applicant's Attorney	<a href="#">Page 17</a>
807 KAR 5:001, § 4(3)	Name, Address, Telephone Number, Fax Number, and e-mail address of Applicant's Attorney	<a href="#">Page 17</a>
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	<a href="#">Page 2, Para 3</a> <b>Not Applicable</b>
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	<a href="#">Page 2, Para 3</a> <b>Not Applicable</b>
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	<a href="#">Page 2, Para 3</a> <b>Not Applicable</b>
807 KAR 5:001, § 15(2)(a)	The facts relied upon to show that the public convenience and necessity requires the proposed construction	<a href="#">Pages 10-11, Paras 29-30</a> <a href="#">Exhibit 15</a>
807 KAR 5:001, § 15(2)(b)	Copies of franchises or permits for the proposed construction or extension	<a href="#">Page 12, Paras 33-34</a> <a href="#">Exhibit 20</a>
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	<a href="#">Page 10, Para 29</a> <a href="#">Page 11, Para 31</a> <a href="#">Page 12, Para 35</a> <a href="#">Page 13, Para 41</a> <a href="#">Exhibit 16, Exhibit 17</a> <a href="#">Exhibit 21</a> Exhibit 18 (Filed Separately)
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	<a href="#">Page 11, Para 31</a> <a href="#">Page 12, Para 35</a> <a href="#">Exhibit 17, Exhibit 21</a>

Source Authority	Requirement	Location
807 KAR 5:001, § 15(2)(d)(2)	Plans and specifications and drawings of the proposed plant, equipment, and facilities	<a href="#">Page 11, Para 32</a> Exhibit 18 (filed separately) <a href="#">Exhibit 19</a>
807 KAR 5:001, § 15(2)(e)	The manner in detail in which the Applicant proposes to finance the proposed construction or extension.	<a href="#">Page 13, Para 40</a>
807 KAR 5:001, § 15(2)(f)	An estimated annual cost of operation after the proposed facilities are placed into service	<a href="#">Page 13, Para 40</a>
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	<a href="#">Exhibit 16, Exhibit 17</a> Exhibit 18 (filed separately) <a href="#">Exhibit 19, Exhibit 22</a>



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

<b>Source Authority</b>	<b>Requirement</b>	<b>Location</b>
807 KAR 5:001, § 14(1)	Applicant's name, mailing address and e-mail address	<a href="#">Page 2, Para 1</a>
807 KAR 5:001, § 14(1)	Statutory Reference – KRS 278.300	<a href="#">Page 1</a>
807 KAR 5:001, § 4(3)	Signature of Applicant's Attorney	<a href="#">Page 17</a>
807 KAR 5:001, § 4(3)	Name, Address, Telephone Number, Fax Number, and e-mail address of Applicant's Attorney	<a href="#">Page 17</a>
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	<a href="#">Page 2, Para 3</a> <b>Not Applicable</b>
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	<a href="#">Page 2, Para 3</a> <b>Not Applicable</b>
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	<a href="#">Page 2, Para 3</a> <b>Not Applicable</b>
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	<a href="#">Page S-1</a>
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	<a href="#">Page 15, Para 48</a>
807 KAR 5:001, § 18(1)(c)	Description of amount and kinds of stock to be issued	<a href="#">Page 15, Para 49</a> <b>Not Applicable</b>
807 KAR 5:001, § 18(1)(c)	Description of amount, terms and interest rate of bond or note	<a href="#">Page 13, Para 42</a>
807 KAR 5:001, § 18(1)(c)	Description of how bond or note will be secured	<a href="#">Page 13, Para 42</a>
807 KAR 5:001, § 18(1)(d)	Statement of how proceeds are to be used	<a href="#">Page 10, Para 26</a> <a href="#">Page 13, Para 40</a> <a href="#">Page 13, Para 42</a>

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	<a href="#">Pages 3-5, Paras 9-12</a> <a href="#">Page 9, Para 22</a> <a href="#">Page 11, Paras 31-32</a> <a href="#">Exhibit 3, Exhibit 4,</a> <a href="#">Exhibit 5, Exhibit 6,</a> <a href="#">Exhibit 16</a> Exhibit 18 (filed separately)
807 KAR 5:001, § 18(1)(f)	Requirements if proceeds are to refund outstanding obligations	<a href="#">Page 15, Para 50</a> <b>Not Applicable</b>
807 KAR 5:001, § 18(1)(g)	Applicant's written notification to state local debt officer regarding proposed issuance	<a href="#">Page 16, Para 51</a> <a href="#">Exhibit 32</a>
807 KAR 5:001, § 18(2)(a) 807 KAR 5:001, § 12(1)(b)	Financial Exhibit	<a href="#">Page 16, Para 52</a>
807 KAR 5:001, § 18(2)(b)	Copies of trust deeds or mortgages	<a href="#">Page 16, Para 53</a>
807 KAR 5:001, § 18(2)(c)	If property acquired: maps and plans of property	<a href="#">Page 9, Para 21</a> <a href="#">Page 12, Para 35</a> <a href="#">Page 16, Para 54</a> <a href="#">Exhibit 12, Exhibit 17</a> <a href="#">Exhibit 21</a> Exhibit 18 (filed separately)
807 KAR 5:001, § 18(2)(c)	If property acquired: detailed estimates by USoA account number	<a href="#">Page 16, Para 55</a> <a href="#">Exhibit 33</a>

# **EXHIBITS**

## TABLE OF EXHIBITS

<u>Exhibit No.</u>	<u>Description</u>
1	Order of Woodford County Court Establishing South Woodford County Water District (Aug. 19, 1963)
2	A Resolution of the Board of Commissioners of South Woodford County Water District Authorizing an Application to the Kentucky Public Service Commission for a Certificate of Public Convenience and Necessity and Authorization to Issue an Evidence of Indebtedness (Jan. 9, 2024)
3	iPerl Smart Water Meter Data Sheet
4	SmartPoint 520M Pit Set Module Data Sheet
5	Vehicle Gateway Base Station (VGB) Data Sheet
6	Sensus Meter Equipment Software
6A	AutoRead AMR Software Data Sheet
6B	AutoVU Software Module Data Sheet
6C	FieldLogic Handheld Software Data Sheet
7	Sensus Limited Warranty
8	Affidavit of Publication of Advertisement for Bids on System Improvements Project in November 22, 2023 edition of <i>Woodford Sun</i>
9	Certified Bid Tabulations – Contract II – AMR System
10	Project Engineer’s Recommendation
11	A Resolution of the Board of Commissioners of South Woodford County Water District Awarding Contract II – Automated Meter Reading System of the System Improvements Project (Jan. 9, 2024)
12	Maps of Area of Proposed Meter Deployment
13	Contract Specifications for Automated Meter Reading System
14	Electronic mail message from Terry Humphries, P.E., Water Infrastructure Branch, Kentucky Division of Water, to Jeff Reynolds, P.E., HMB Professional Engineers, Inc., subj: DOW Approval for Cleaner Water Program (Jan. 24, 2023) (advising that Division of Water approval is not required for meter replacement)

**Exhibit****No.****Description**

- 15 Photographs of Existing Pump Station
- 16 Legal Description of a 2,953 Sq. Ft. Tract of Land for a Southwest Woodford Water District Pump Station (Aug. 3, 2023)
- 17 Plat Survey of Land on which Existing Pump Station is located and Proposed Replacement Pump Station is proposed to be located
- 18 Plans for Proposed Replacement Pump Station (Filed Separately)
- 19 Contract Specifications for Proposed Replacement Pump Station
- 20 Letter from Terry Humphries, P.E., Water Infrastructure Branch, Kentucky Division of Water, to Jeff Reynolds, P.E., HMB Professional Engineers, Inc., subj: KY 33 PS Replacement (Jul. 13, 2023) (approves plans and specifications for proposed replacement pump station with respect to sanitary features of design)
- 21 Maps of Proposed Replacement Pump Station
- 22 Certified Bid Tabulations – Contract I – KY 33 Pump Station Replacement Project
- 23 A Resolution of the Board of Commissioners of South Woodford County Water District Awarding Contract I – KY 33 Pump Station Rehabilitation of the System Improvements Project (Jan. 9, 2024)
- 24 Estimated Total Cost of System Improvement Projects
- 25 Amortization Schedule for KIA Loan B22-002
- 26 Minutes of April 7, 2022 Meeting of the Board of Directors of Kentucky Infrastructure Authority
- 27 Kentucky Infrastructure Authority Conditional Commitment Letter for Loan B22-002 (Apr. 8, 2022)
- 28 Minutes of May 19, 2022 Meeting of Capital Projects and Bond Oversight Committee of Kentucky General Assembly
- 29 Kentucky Infrastructure Authority Conditional Commitment Letter for Loan B22-002 – Extension (Apr. 4, 2023)
- 30 Kentucky Infrastructure Authority Conditional Commitment Letter for Loan B22-002 – Extension (Nov. 26, 2023)

**Exhibit  
No.**

**Description**

- |           |  |
|-----------|--|
| <b>31</b> | <i>Annual Report of South Woodford County Water District to the Public Service Commission of the Commonwealth of Kentucky for Water Operations for the Calendar Year Ended December 31, 2022</i> |
| <b>32</b> | Notice to State Local Debt Officer   |
| <b>33</b> | Detailed Estimate of Acquired Property, Arranged According to the Uniform Systems of Accounts for Water Districts, Classes A and B   |

# **EXHIBIT 1**

STATE OF KENTUCKY  
WOODFORD COUNTY COURT

OCT 30 1967  
PUBLIC SERVICE  
COMMISSION

AUGUST 19, 1963

IN THE MATTER OF

SOUTH WOODFORD COUNTY WATER DISTRICT

ORDER CREATING DISTRICT

It appearing to the Court upon hearing on this date in the above styled matter, that a petition in writing has been made to this Court for the establishment and creation of a Water District to include the premises more fully described hereinafter, said petition being signed by more than seventy-five freeholders thereof and setting out the reasons therefor, and it appearing that notice of the filing of said petition given by publication as required by law, and no objections having been filed with the Court, and it further appearing that the establishment of the Water District is necessary to the public health, convenience, fire protection and comfort to the residents of the proposed WATER DISTRICT:

NOW, THEREFORE, it is ordered and adjudged that the establishment of the proposed Water District is necessary for the public health, convenience, fire protection and comfort of the residents of the proposed district, and it is further ordered that a Water District, known as South Woodford County Water District, be, and is hereby created and established, consisting of the following property:

Exhibit 7"



The description of the territory to be included in the district is as follows:

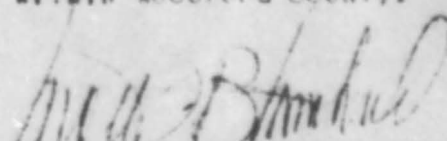
Generally, this district will include an area within a line formed by McCowans Ferry Road to Elliston Lane, east to Elm Bend Church on Route 33 thence to Versailles on Route 33, including Pinckard.

More specifically, the area shall include all within a line starting at Versailles City Limits going southwest along Route US 62 to a point where Route 62 becomes 1 mile from McCowans Ferry Road. (Homes and farms on US 62 or immediately adjacent thereto will not be included.)

The line will thence go south remaining 1 mile from and parallel to McCowans Ferry Road to Elliston Lane. From end of Elliston Lane east to Elm Bend Church on Route 33 (homes and farms along this line of Elliston Lane to Elm Bend Church will be included.) The country line will thence run north at a distance of 1 mile east of Route 33 to the Versailles City Line (excluding Hunteertown Road area.)

An area east from Route 33 along Delaney Road (1/2 mile north and south of Delaney Road) to the junction of the Nicholasville Road will also be included, as will the area within a 1 mile radius of this junction.

All the above areas of within Woodford County.

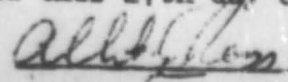
  
\_\_\_\_\_  
JUDGE, WOODFORD COUNTY COURT

State of Kentucky

Woodford County Court, Set.,

I, Albert E. Rose, Clerk of the Woodford County Court, certify that the foregoing is a true and correct copy of the Order Creating District as it appears in my office in Order Book 16 at page 637.

Given under my hand this 27th day of October, 1967.

Attest:  \_\_\_\_\_, Clerk

# **EXHIBIT 2**

**RESOLUTION NO. 2024-01-09-1**

**A RESOLUTION OF THE BOARD OF COMMISSIONERS OF SOUTH  
WOODFORD COUNTY WATER DISTRICT AUTHORIZING AN  
APPLICATION TO THE KENTUCKY PUBLIC SERVICE  
COMMISSION FOR A CERTIFICATE OF PUBLIC CONVENIENCE  
AND NECESSITY AND AUTHORIZATION TO ISSUE AN EVIDENCE  
OF INDEBTEDNESS**

**WHEREAS**, South Woodford County Water District (“the 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**, the District owns and operates facilities used to transport and distribute water to the public for compensation to serve the residents of Woodford County, Kentucky;

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

**WHEREAS**, the District proposes a series of improvements to its water distribution system known as “System Improvements Project” (“the Project”) at an estimated total cost of \$1,746,449;

**WHEREAS**, the District proposes to finance the Project with the proceeds of a loan of \$2,230,000 loan (“KIA Loan B22-02”) from the Kentucky Infrastructure Authority (“KIA”);

**WHEREAS**, the District must execute an Assistance Agreement with KIA to obtain KIA Loan B22-02;

**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; and

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

**WHEREAS**, KRS 278.300(1) requires a utility to obtain authorization from the Kentucky Public Service Commission prior to issuing any evidence of indebtedness;

**WHEREAS**, KRS 278.300(1) requires the District to obtain prior Commission authorization before executing an Assistance Agreement for KIA Loan B22-02;

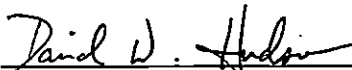
**NOW, THEREFORE, IT IS HEREBY RESOLVED BY THE BOARD OF COMMISSIONERS OF SOUTH WOODFORD COUNTY WATER DISTRICT AS FOLLOWS:**

**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 Chairman of the District's Board of Commissioners, the District's General Manager, appropriate Staff, and its legal counsel are hereby further authorized and directed to take all actions necessary to apply to the Kentucky Public Service Commission for a certificate of public convenience and necessity for the Project, for authority to execute an Assistance Agreement with KIA to obtain KIA Loan B22-02, and for such other relief as appropriate and necessary to ensure that the District 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 SOUTH WOODFORD COUNTY WATER DISTRICT at a meeting held on January 9, 2024, signed by the Chairman, and attested by the Secretary.**

  
\_\_\_\_\_  
David Hudson, Acting Chairman

**ATTEST:**

  
\_\_\_\_\_  
Edwin Robert Lippert II, Acting Secretary

**CERTIFICATION**

I, the undersigned, hereby certify that I am the duly qualified and acting Secretary of the South Woodford County Water District; that the foregoing is a full, true and correct copy of a Resolution adopted by the Board of Commissioners of the South Woodford County Water District at a meeting duly held on January 9, 2024; that said official action appears as a matter of public record in South Woodford County Water District's official records or journal; that said meeting was held in accordance with all applicable requirements of Kentucky law, including KRS 61.810, 61.815, 61.820 and 61.823; that a quorum was present at said meeting; that said official action has not been modified, amended, revoked or repealed and is now in full force and effect.

WITNESS my hand this 9th day of January 2024.

  
\_\_\_\_\_  
Edwin Robert Lippert II, Acting Secretary

# **EXHIBIT 3**



## iPERL Smart Water Meter

### Electromagnetic Flow Measurement System

Sensus iPERL® smart water meters are designed to capture both lost water and lost revenue. The innovative magnetic technology delivers unmatched low flow registration and minimal pressure loss. With no moving parts, iPERL maintains its accuracy over a 20 year lifetime and is equipped with smart water alarms - delivering the intelligence you need to quickly resolve issues in the field.

#### FEATURES

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- 5/8", 5/8" x 3/4", 3/4" and 1" sizes available in potable and reclaim versions
  - 3/4" and 1" available in residential fire service (UL 327b)
  - Starts registering flow as low as 0.03 gpm (0.007 m<sup>3</sup>/hr)
  - Can be installed horizontally, vertically or diagonally
  - Compatible with current Sensus AMI/AMR systems
- 

#### BENEFITS

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- Maximize investment with iPERL's electromagnetic technology, which delivers a 20-year accuracy warranty, with no required maintenance, and no loss in accuracy over 20 years
  - Smart alarms detect issues such as leaks, reverse flow, empty pipe, etc.
  - Improve low flow accuracy to drive additional revenue
- 

#### Industry Leading Performance

The patented measurement technology of the iPERL water meter provides continuous and enhanced accuracy ranges at both low and high flows and perpetual accuracy over the life of the product. The iPERL meter has a 20-year accuracy warranty and a 20-year battery life guarantee. Over this 20-year lifespan, your iPERL will measure just as accurately as the day it was installed.

#### Construction

The iPERL meter body is available in two versions. The first version has a flow tube that is comprised entirely of composite polymer. The second version is comprised of lead-free bronze alloy with a composite polymer core. Both versions use the same thermal polymer shell with the same electronic register inside.

#### Electronic Register

The 9-digit hermetically-sealed electronic register with LCD display was designed to eliminate dirt, water, and moisture contamination in pit settings. The large, easy-to-read display includes AMI/AMR digits, direction of flow, units of measure, and empty pipe detection. The AMI/AMR digits and units of measure are fully programmable. The register also provides user configurable data logging.

#### Solid State Electromagnetic Technology

By avoiding the use of a mechanical measuring element inside the flow tube, metering performance is linear over the entire flow range - ensuring no reduction in accuracy at any flow rate over the life of the meter. The iPERL meter uses our patented remanent magnetic field technology - requiring far less energy and delivering superior accuracy.

#### Tamperproof

The integrated construction of the iPERL water meter prevents removal of the register to obtain free water. The magnetic tamper and low field alarms will both indicate any attempt to tamper with the magnetic field of the iPERL meter. The meter communication alarm indicates a possible cut cable.

#### Alarms

Quick resolution of field issues is made possible with smart water alarms including leak detection, reverse flow, empty pipe, magnetic tamper and low battery. When integrated with our FlexNet® communication network, remotely gathering and transmitting data has never been more reliable or profitable.

# iPERL Smart Water Meter

## Electromagnetic Flow Measurement System

### Smart Alarms

iPERL meters have many configurable smart alarms designed to protect your utility's investment, enhance customer service, and monitor/optimize distribution systems. These alarms include:

- Empty Pipe  
Detects the absence of water in the flow tube and sends an alert. Allows you to identify main breaks downstream and water shortages for quicker resolution to ensure water availability. This alarm can also indicate the water meter has been removed from service, or notify you of potential tamper.
- Tampering  
Detect magnetic interference to reduce apparent water losses and protect against unauthorized activities.
- Customer Leak  
Detect continual consumption of water over a period of time to indicate downstream leaks. This protects your utility, infrastructure and customers through alarm notifications that can reduce water loss and leak adjustment costs.
- Low Battery  
Replace your meters before they stop recording consumption through alerts indicating battery capacity to the meter or valve is running low.
- Reverse Flow  
Keep untreated water from re-entering your distribution system and deter tampering attempts through an alarm triggered when reverse flow is detected at the meter.

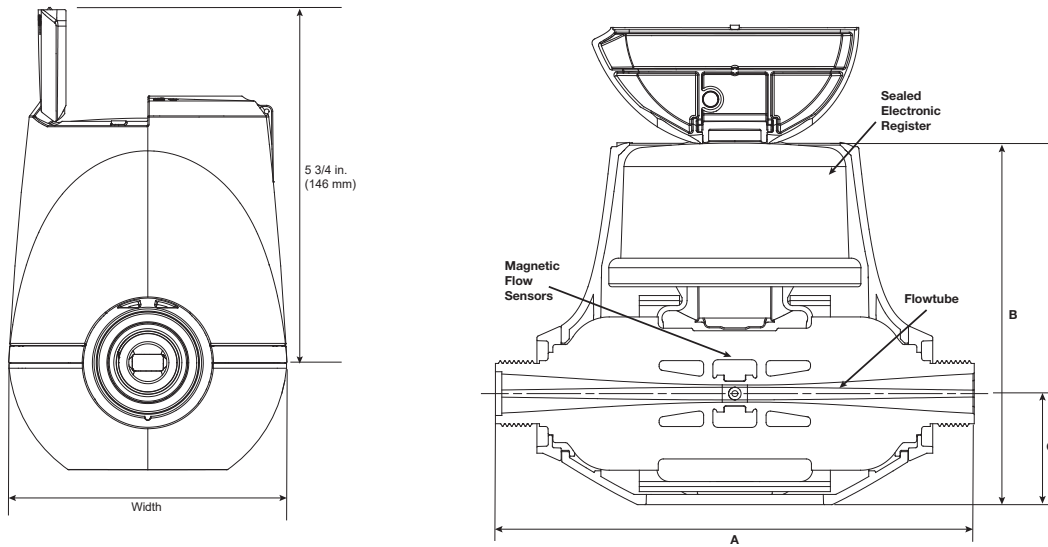
### SPECIFICATIONS

Service	Measurement of potable and reclaim water, and Residential Fire Service (UL 327b). 0-100% humidity. Fully submersible. IP68+ rated.			
Temperature Ranges	Water operating: 33 °F (0.55 °C) to 80 °F (26.7 °C) Ambient air operating: -22 °F (-30 °C) to 140 °F (60 °C) Storage air: -30 °F (-34.4 °C) to 158 °F (70 °C)			
Starting Flow	5/8" (DN 15 mm) size: 0.03 gpm (0.007 m3/h)	5/8" x 3/4" (DN 15x20 mm) size: 0.03 gpm (0.007 m3/h)	3/4" (DN 20 mm) size: 0.03 gpm (0.007 m3/h)	1" (DN 25 mm) size: 0.11 gpm (0.025 m3/h)
Low Flow Range (±3%)	5/8" (DN 15 mm) size: >0.10 gpm (0.025 m3/hr) to <0.18 gpm (0.041 m3/hr)	5/8" x 3/4" (DN 15 mm) size: >0.10 gpm (0.025 m3/hr) to <0.18 gpm (0.041 m3/hr)	3/4" (DN 20 mm) size: >0.10 gpm (0.025 m3/hr) to <0.18 gpm (0.041 m3/hr)	1" (DN 25 mm) size: >0.3 gpm (0.068 m3/hr) to <0.4 gpm (0.09 m3/hr)
Normal Water Operating Flow Range (±1.5%)	5/8" (DN 15 mm) size: 0.18 to 25 gpm (0.04 to 5.7 m3/hr)	5/8" x 3/4" (DN 15x20 mm) size: 0.18 to 35 gpm (0.04 to 8.0 m3/hr)	3/4" (DN 20 mm) size: 0.18 to 35 gpm (0.04 to 8.0 m3/hr)	1" (DN 25 mm) size: 0.4 to 55 gpm (0.09 to 12.5 m3/hr)
Maximum Operating Pressure	5/8", 5/8" x 3/4", and 3/4" size: 200 psi (13.8 bar) 1" size: 175 psi (12.1 bar)			
Measurement Technology	Solid state electromagnetic flow			
Register	Hermetically sealed, 9-digit programmable electronic register			
Capacity	10,000,000 gallons, 1,000,000 cubic feet or 100,000 m3 capacity			
Register Resolution	.01 gallons/imperial gallons, .001 cubic foot, or .0001 m3			
Conformance to Standards	Meets the requirements of NSF 61, Annex G and NSF 372. Exceeds the most current revision of AWWA Standard C-715.			
Materials	External housing - Thermal polymer Flowtube - Composite polymer or a bronze alloy flowtube with a composite polymer internal core		Electrode - Silver/silver chloride Register cover - Hermetically sealed glass	



# iPERL Smart Water Meter

## Electromagnetic Flow Measurement System



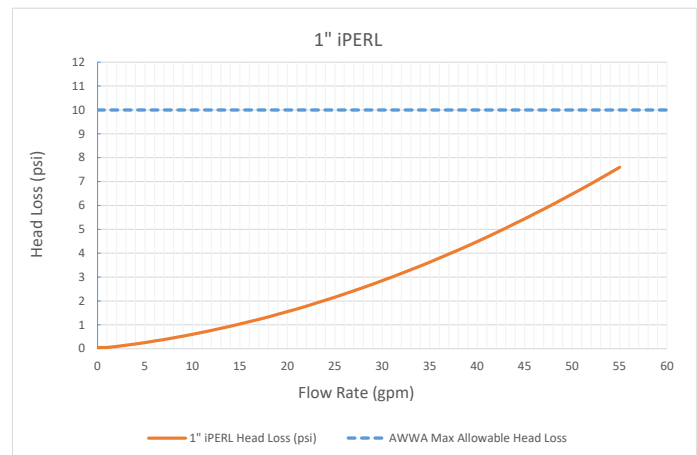
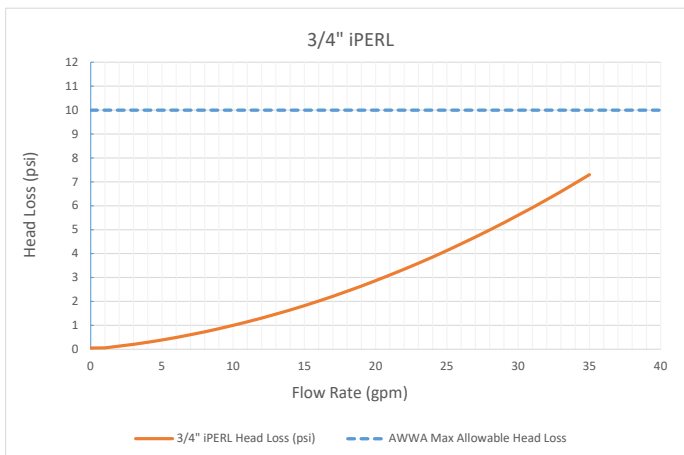
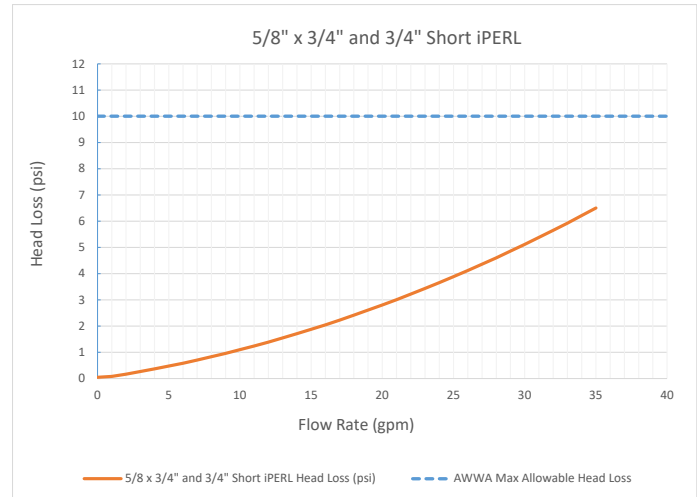
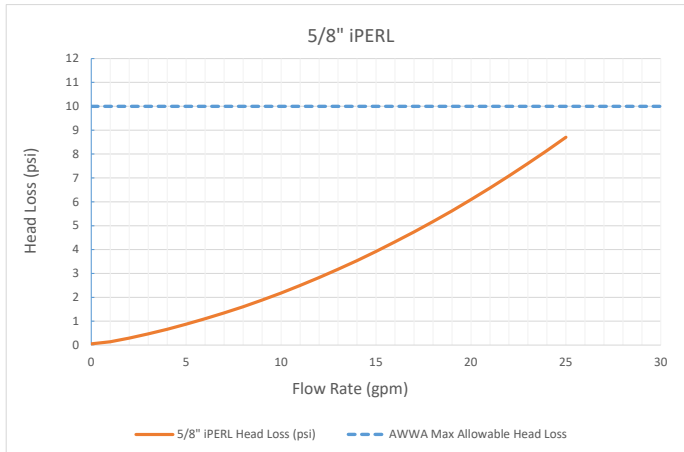
### DIMENSIONS AND NET WEIGHTS

Meter Size	A	B	C	Spud Ends	NPSM Thread Size	Width	Net Weight
5/8" (DN 15 mm)	7-1/2" (190 mm)	6-1/10" (155mm)	1-3/4" (44 mm)	5/8" (15 mm)	3/4" (20 mm)	4-1/2" (114 mm)	3.1 lb. (1.4 kg)
5/8" x 3/4" (DN 15mm x 20 mm)	7-1/2" (190 mm)	6-1/10" (155mm)	1-3/4" (44 mm)	3/4" (20 mm)	1" (25 mm)	4-1/2" (114 mm)	3.1 lb. (1.4 kg)
3/4" Short (DN 20 mm)	7-1/2" (190 mm)	6-1/10" (155 mm)	1-3/4" (44 mm)	3/4" (20 mm)	1" (25 mm)	4-1/2" (114 mm)	3.1 lb. (1.4 kg)
3/4" (DN 20 mm)	9" (229 mm)	6-1/10" (155 mm)	1-3/4" (44 mm)	3/4" (20 mm)	1" (25 mm)	4-1/2" (114 mm)	3.2 lb. (1.45 kg)
1" (DN 25 mm)	10-3/4" (273 mm)	6-1/10" (155 mm)	1-3/4" (44 mm)	1" (25 mm)	1-1/4" (32 mm)	4-1/2" (114 mm)	3.3 lb. (1.5 kg)

# iPERL Smart Water Meter

## Electromagnetic Flow Measurement System

### Head Loss Curves



# **EXHIBIT 4**



# SmartPoint 520M

## Pit Set Module

The SmartPoint® 520M Pit Set Module is a radio transceiver that provides water utilities inbound and outbound access to water measurement and ancillary device diagnostics via radio signal. The SmartPoint 520M is designed for submersible, pit-set environments.

### BENEFITS:

- Easily receives input from either walk-by/drive-by or fixed-base collection device
- Controls both deployment and lifetime operation costs
- Compact installation that saves time, space and money - without reducing system performance
- Delivers a fast, efficient and reliable connection at minimal cost
- Minimizes new infrastructure investment
- Enables effective leak detection

### TouchCoupler Design

The SmartPoint 520M Module utilizes TouchCoupler, the patented Sensus inductive coupling communication platform, to interface with the encoded meter. With TouchCoupler, the SmartPoint 520M Module can connect to the meter using existing two wire AMR installations instead of requiring utilities to access the meter to install a new three-wire connection. This results in a fast, efficient and reliable connection at minimal cost.

### Operation

With its migratable, two-way communication ability, the M-Series SmartPoint functions as a walk-by/drive-by endpoint, fixed-base endpoint, or combination of the two. This flexibility increases utility data collection capabilities and streamlines operations. The SmartPoint 520M Module receives input from the meter register and remotely sends data to a walk-by/drive-by or fixed-base collection device. The SmartPoint 520M Module easily migrates from walk-by/drive-by to fixed base by simply installing a Base Station.

In walk-by/drive-by mode, the SmartPoint 520M Module collects data and awaits an activation signal from the Vehicle Gateway Basestation (VGB) or Hand-Held Device (HHD). Upon signal receipt, it transmits readings, the meter identification number and any alarms.

As a fixed-base endpoint, the SmartPoint 520M Module interacts with one or more strategically placed Base Stations located in the utility service area. Top of the hour readings and other diagnostics are instantly forwarded to the Regional Network Interface (RNI)<sup>™</sup> at time of transmission. The FlexNet® communication network provides unmatched reliability by using expansive tower receiver coverage of metering end points, data/message redundancy, failover backup provisions and operation on FCC primary use (unshared) RF spectrum.

## Pit Set Module

### Powerful Transmission, Flexible Platform

The SmartPoint® 520M Pit Set Module offers several advantages that control both deployment and lifetime operation costs. Its powerful, industry-leading two watt transmitter broadcasts over large distances and minimizes collection infrastructure. And after the SmartPoint is installed, its migratable, two-way system platform can be updated without requiring personnel to visit each meter and/or inconveniencing customers.

### Additional Smartpoint 520M Module Features

The SmartPoint 520M Module obtains hourly

readings and can monitor continuous flow over a programmable period of time, alerting the utility to leak conditions. In addition, the SmartPoint stores up to 840 consumption intervals (35 days of hourly consumption), providing the utility with the ability to extract detailed usage profiles for consumer information and dispute resolution. The SmartPoint also incorporates a two-port design, allowing the utility to connect multiple registers and ancillary devices (such as acoustic monitoring) to a single SmartPoint. This results in a compact installation that saves time, space and money - without reducing system performance.

### Specifications

Service	Pit set installation interfacing the utility meter to the Sensus FlexNet communication network. Unit requires 1.75" diameter hole in pit lid; fits pit lid thicknesses up to 1.75"
Physical characteristics	Width: 4.43" x Height: 5.09" x Depth: 3"
Weight	1.0 lbs/16.0 oz
Color	Black
Frequency range	900 - 950 MHz, 8000 channels X 6.25 kHz steps
Modulation	Proprietary Narrow Band
Memory	Non-Volatile
Power	Lithium Thionyl Chloride batteries
Approvals	US: FCC CFR 47: Part 24D, Part 101C, Part 15 Licensed operation Canada: Industry Canada (IC) RSS-134, RSS-119
Operating temperature	- 22° F to +185° F - 30° C to + 85° C
Options	Dual or single port availability; TouchCoupler only, wired only
Installation environment	100% condensing, water submersible
Compatibility	TouchCoupler and Wired Version: Sensus Encoder Registers, Badger ADE water registers, Master Meter AccuLinx, and Hersey Translator (approved TR/PL Lead)  Wired Version Only: Elster Encoder (Sensus protocol), Neptune ARB VI (ProRead), Hersey Translator, Zenner PMN Nitro 01, McCrometer flowcom FC100-00M, and Kamstrup flowIQ 2100  Refer to the 510M/520M SmartPoint® Module Water Meter and Ancillaries Compatibility Quick Guide for the latest compatibility information.
Warranty	20 years - Based on six transmissions per day. Refer to Sensus G-500 for warranty.



8601 Six Forks Rd, Ste 700  
Raleigh, NC 27615  
1-800-638-3748  
sensus.com

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# **EXHIBIT 5**



# Vehicle Gateway Base Station (VGB)

**Model 4700**

## BENEFITS

- Sensus’ user-focused equipment and software provides utilities with tremendous meter reading efficiency.
- Fewer limitations compared to other types of radio-based meter reading systems.
- Sensus’ software platforms operate with all of our reading packages, allowing utilities to transition systems without downtime for operator training.

## COMPONENTS



*A Vehicle Transceiver Unit (VXU) is required for dual reading capability.*

The Vehicle Gateway Base Station (VGB) is a portable radio-based device used for the acquisition of data from utility meters and other field-based diagnostic instruments. The VGB is compact and portable, allowing it to be used in any vehicle providing 12-volt DC power.

## Ease of Operation

To operate the VGB, the user simply places the unit in a vehicle cabin, loads the desired meter reading route into a laptop computer and drives along the prescribed route. Meter data is collected as the vehicle travels within proximity of meters and other instruments on the route.

The VGB sends an alert signal to the meter’s SmartPoint® module or ancillary device. Upon receipt of the alert, the SmartPoint module responds by transmitting its most recent reading. Once received, the SmartPoint module returns to a low-power listening mode. The operator sends out a signal and connects to all SmartPoint modules within range.

## Portability

Through the use of advanced design, the radio electronics of the VGB are contained in a portable enclosure about the size of a small briefcase. With the addition of a laptop computer, connecting cables and antenna, the complete VGB package can be set up in any vehicle within minutes. The portable VGB instantly turns almost any vehicle—even a compact car—into a meter reading machine.

## System Reliability

The FlexNet® communication network utilizes primary-use radio frequencies to communicate with SmartPoint modules. The combination of FCC-protected frequencies and sheer transmission power of the SmartPoint modules ensure reliable communication from meters and ancillary devices. In addition, SmartPoint M2 modules provide infrastructure detail by monitoring their operating conditions and reporting meter tamper, continuous flow, leak detection (when equipped), high or low consumption and low battery alarms.

# Vehicle Gateway Base Station (VGB)

## Model 4700

### User Friendly Software

The VGB utilizes AutoVu®, a software program designed for operating Sensus drive-by meter reading equipment. AutoVu features a convenient, user-friendly pull-down menu system for directing the meter reading process. Operators are also able to input information, such as route notes, manually via the PC's keyboards. The operator can easily edit route data configurations when necessary. The mapping feature allows the operator to add further efficiency by customizing the meter reader view to relevant meter reading process information. Back at the office, Sensus AutoRead® processes the information gathered by AutoVu and provide the utility's billing software with a simple plug-and-play interface, no matter what Sensus reading system is utilized.

### General

Service	Radio-based mobile utility meter reading system
Dimensions	19.10" W x 11.24" D x 5.22" H
Weight	18 lbs.
Power	120W (< 10A) VGB only 140W (< 12A) with VXU connected
Frequency Range	900-960 MHz
Receiver Sensitivity	-118 dBm
Memory	Non-Volatile
Approvals	Licensed Operation US: FCC CFR 47, Part 24D, Part 101C, Part 15 Canada: Industry Canada (IC) RSS-134, RSS-210
Software	AutoVu (3.0 or higher)



637 Davis Drive  
Morrisville, NC 27560  
1-800-638-3748  
[sensus.com](http://sensus.com)

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# **EXHIBIT 6**

# **EXHIBIT 6A**

# AutoRead AMR

Advanced Meter Reading Technology for Utilities

## Description

The AutoRead software package from Sensus is a comprehensive software program offering utilities flexibility for managing their meter reading processes.

AutoRead provides a number of useful functions for the utility. It increases operating efficiency, provides a variety of management reports and summaries, and reduces the time required for sending reading data to

the billing software. The AutoRead flexible menu-driven system includes a wide selection of user specification options and configurations. These features make AutoRead software highly adaptable to meet each utility's specific requirements.

All features are available on all AutoRead software packages except where noted.



## Features

### COMPLETE AMR SOFTWARE INTEGRATION

The modular design of AutoRead software lets the utility integrate Sensus FlexNet, TouchRead, and RadioRead meter reading systems into one specially designed software package. AutoRead flexibility enables the utility to operate a single meter reading system in conjunction with any of the other Sensus AMR systems. The utility can begin with one system and migrate to another by simply adding modules to its existing AutoRead software program. The migration path provides the opportunity for increased operational efficiency and minimizes training needs while eliminating the need for costly software replacement.

### FLEXIBILITY

AutoRead is completely adaptable to the particular features of any utility operation and can be interfaced with other PC-based automated billing and accounting systems or existing mainframe billing and accounting systems by passing ASCII II files back and forth.

### NEW ROUTE INFORMATION UPLOAD

AutoRead prepares route information for the selected Sensus meter system. For systems incorporating hand-held meter reading devices (Walk-By), new or inexperienced meter readers are guided through an entire route by following information in the on-screen route program. Meter readers can be alerted to abnormally high or low readings and misreads, such as incorrect manual entry of reading data into the handheld device, or to hazards along the route. AutoRead can be used to design utility field surveys that instruct meter readers to respond to route survey questions. When used with the Sensus FlexNet or RadioRead vehicle unit (Drive-By), AutoRead formats the routes so the Vehicle Transceiver Unit (VXU) or Vehicle Gateway Base Station (VGB) can communicate efficiently with the radio equipped meters.

### METER READING DOWNLOAD

AutoRead eliminates the step of manually transferring meter reading data into the computer. This is accomplished by electronically transferring the data recorded by any of the Sensus meter reading systems into the AutoRead program. AutoRead then processes the meter readings, preparing them for transfer to the computer's billing files. AutoRead can be used with a utility's existing computerized billing system, or as part of a new stand alone system.

### BACKUP AND RESTORAL

AutoRead enables the user to back up (store) meter readings downloaded each day from any of the meter reading systems. The backup procedure simply transfers the data stored on the hard disk of the PC to almost any backup computer media.

# AutoRead AMR

Advanced Meter Reading Technology for Utilities

## Management Reporting

AutoRead is a valuable management tool for increasing meter reader capabilities. These features enable the utility to generate a variety of helpful management reports. AutoRead reports provide a documented overview of meter reading activities, manpower efficiency, and service problems.

AutoRead receives the time of day from the PC during the transfer

process and uses this information as its time clock. This allows AutoRead to produce both specific and statistical reports on time elapsed between reads, as well as the date and time that each reading was made. This information allows more flexibility in comparing meter reading efficiency, establishing or reorganizing routes, and assigning meter readers to routes matched to their performance levels.

Additional management reports include master route, non read exceptions, and multiple read exceptions, questions, route notes, and marked locations along the routes, and others. AutoRead also allows the utility to specify how each report should be categorized. Report information can be organized by account number, meter ID number, sequentially (in the order the meters were read) or other options.

## AutoRead Package

AutoRead is available for Microsoft® Windows Operating Systems.<sup>1</sup>

A copyrighted version of the AutoRead package is available on CD-ROM for approved Windows Operating Systems. Instructions are included for installation, setup, adding or revising route information, generating utility management reports, operating procedures and more.

In addition, a complete Sensus system support program is available. It includes a toll free 900 telephone technical support service, yearly software upgrades and more.

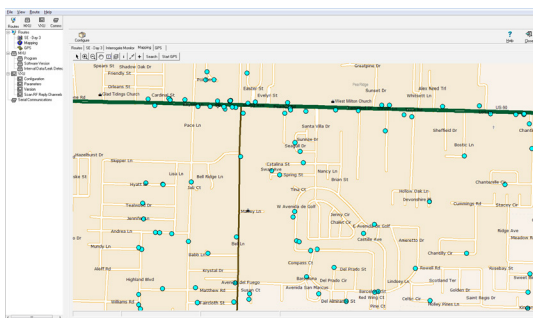
For additional information, contact your Sensus representative or authorized Sensus AMR system distributor.

<sup>1</sup> See the Operating Systems section of the Requirements document. ([sensus.com/web/user/support/software-and-firmware-updates](http://sensus.com/web/user/support/software-and-firmware-updates))

# **EXHIBIT 6B**

## Description

User-friendly full color MS Windows screen and graphics



Route maps are automatically repositioned as the vehicle moves along



Each meter location is shown and readings are verified as the route is traversed

## Features

### INTRODUCTION

Sensus AutoVU software provides graphic on-screen mapping for the Sensus RadioRead™ and FlexNet Drive-By Solutions. The AutoVU software module enhances vehicle based radio reading.

### PROGRAM FEATURES

- Provides GPS based mapping interface to graphically depict the location of each meter along a meter reading route and instantly verify each reading
- Uses precise locating and mapping technology made possible by existing low earth orbiting Global Positioning Satellites (GPS)
- Meter locations along each route can be optionally set by the utility to change color or disappear from the screen as each meter reading is successfully collected.
- The on-screen map automatically shifts position when used with the GPS System, keeping the meter reading vehicle location “positioned”

on the map as it travels along the meter reading route.

- Provides ability to include map layers - i.e., water, street names, etc. when the maps are displayed.
  - Shortens meter reading time and helps reduce costs
  - On-screen instant reading verification helps eliminate the need to re-drive the complete meter reading route to obtain readings which may have been missed
  - Helps eliminate guesswork in establishing the most efficient routes for radio based meter reading
  - Alerts the meter reader of “high” and “low” reading limit discrepancies and low battery signals
  - Non-radio equipped meters can be depicted on the digital route maps to alert the user that manual or special readings are required at specified locations
- Reading route statistics are saved and displayed as the routes are loaded and being read.

### SUPPORT

Participation in the Sensus Systems Support Program is highly recommended. The fee for the first year of the Sensus Systems Support Program is included in the price of the AutoVU software. Initial program coverage begins on the ship date of the Sensus AutoVU System software to customer. Yearly renewal notices will be mailed to customers approximately 60 days prior to their first year expiration date. Customers who do not choose to renew during their renewal period can contact Sensus at any time in future years to enroll in the System Support Program.

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# **EXHIBIT 6C**

## Description

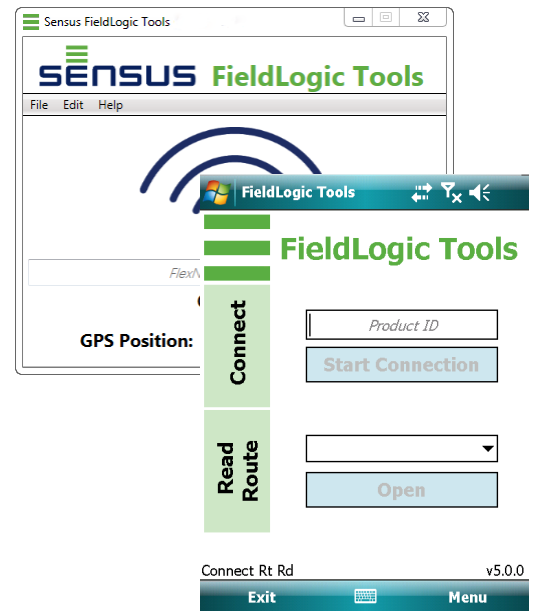
FieldLogic is a suite of tools designed to simplify programming and reading Sensus endpoint devices.

Benefits of FieldLogic include:

- Easy management of multiple handheld devices
- A fast and simple one-step installation process
- Simultaneous RadioRead and SmartPoint device reading
- Improved business process integration with a work order tool interface

FieldLogic Software contains two applications: FieldLogic Hub and FieldLogic Tools.

- FieldLogic Hub is a PC-based application for device configuration and route management setup
- FieldLogic Tools is a handheld or PC-based application for working with SmartPoint® devices and meters and route reading.
- FieldLogic Tools replaces the existing handheld functionality in AutoRead, FlexPro, UniPro and SMSHApp tools.



## Features

### FIELDLOGIC HUB

Hub allows utilities to manage multiple handheld devices which in turn configure/read SmartPoint or RadioRead modules. Hub manages devices, configuration bundles, and the import/export of routes.

Configuration bundles are set up prior to fieldwork by the utility to control the handheld functionality and configuration of endpoints. This reduces the time it takes to accomplish tasks in the field such as reading meters, new installation, or meter changes.

Routes can be imported from a billing system, loaded on to a handheld, read, and then exported back through Hub to a billing system.

### FIELDLOGIC TOOLS: CONNECT

Connect communicates with and programs Sensus endpoints. Connect uses Bundles to preconfigure the options installers see when setting up Sensus endpoints in the field. This simplifies the installation process, improving the speed at which installers can perform their job while decreasing the opportunity for errors. Connect also is used to deactivate and troubleshoot endpoints.

### FIELDLOGIC TOOLS: READ ROUTE

Read Route is used to collect meter reading data from Sensus endpoints. It provides field personnel with route information along with other pertinent information the utility configures. Alarms are provided in the field, allowing problem investigation to occur while field personnel are at the location. The tool supports simultaneous reading of SmartPoint, RadioRead and TouchRead technologies, eliminating the need for field personnel to carry multiple devices.

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# **EXHIBIT 7**

# Sensus Limited Warranty

13. **ally® Meter Batteries and Components, including SmartPoint 510M/520M Modules** are warranted to be free from defects in material and workmanship from the Date of Installation, as defined in Section 4, for the period stated below:

Batteries	15 years <sup>6</sup>
Sensors	5 years
Valve & Gear Motor	5 years <sup>7</sup>
SmartPoint 510M/520M Modules and Batteries in service w/ally	15 years <sup>6</sup>

14. **Cordonel Meter Batteries and Components** are warranted to be free from defects in material and workmanship from the Date of Installation, as defined in Section 7, for the period stated below:

Batteries	20 years <sup>3</sup>
Sensors	5 years
SmartPoint 510M/520M Modules and Batteries in service w/Cordonel models with pressure	15 years <sup>6</sup>

15. **iPERL and ally Connectors and Cables** are warranted to be free from defects in materials and workmanship, under normal use and service, for ten (10) years from the date of Sensus shipment. Nicor or Itron connectors included with a Sensus product are warranted according to the terms for Third-Party Devices in Section 16.

16. **Third-Party Devices** are warranted to be free from defects in materials and workmanship, under normal use and service, for one (1) year from the date of Sensus shipment. As used in this Sensus Limited Warranty, "Third Party Devices" means any product, device, or component part used with a Sensus product that is manufactured or sold by any party that is not Sensus. Failure of a Third-Party Device which subsequently causes failure to a Sensus device shall be the responsibility of the manufacturer of the Third-Party Device.

17. **Software.** Software supplied and/or licensed by Sensus is supported according to the terms of the applicable software license or usage agreement. Sensus warrants that any network and monitoring services shall be performed in a professional and workmanlike manner.

18. **Return.** Sensus' obligation, and Customer's exclusive remedy, under this Sensus Limited Warranty is, at Sensus' option, to either (i) repair or replace the product, provided the Customer (a) returns the product to the location designated by Sensus within the warranty period; and (b) prepays the freight costs both to and from such location; or (ii) deliver replacement components to the Customer, provided the Customer installs, at its cost, such components in or on the product (as instructed by Sensus), provided, that if Sensus requests, the Customer (a) returns the product to the location designated by Sensus within the warranty period; and (b) prepays the freight costs both to and from such location. In all cases, if Customer does not return the product within the time period designated by Sensus, Sensus will invoice, and Customer will pay within thirty days of the invoice date, for the cost of the replacement product and/or components.

The return of products for warranty claims must follow Sensus' Returned Materials Authorization (RMA) procedures. Water meter returns must include documentation of the Customer's test results. Test results must be obtained according to AWWA standards and must specify the meter serial number. The test results will not be valid if the meter is found to contain foreign materials. If Customer chooses not to test a Sensus water meter prior to returning it to Sensus, Sensus will repair or replace the meter, at Sensus' option, after the meter has been tested by Sensus. The Customer will be charged Sensus' then current testing fee. All products must be returned in accordance with the RMA process. For all returns, Sensus reserves the right to request meter reading records by serial number to validate warranty claims.

For products that have become discontinued or obsolete ("**Obsolete Product**"), Sensus may, at its discretion, replace such Obsolete Product with a different product model ("**New Product**"), provided that the New Product has substantially similar features as the Obsolete Product. The New Product shall be warranted as set forth in this Sensus Limited Warranty.

THIS SECTION 18 SETS FORTH CUSTOMER'S SOLE REMEDY FOR THE FAILURE OF THE PRODUCTS, SERVICES OR LICENSED SOFTWARE TO CONFORM TO THEIR RESPECTIVE WARRANTIES.

<sup>6</sup> If applicable, any SmartPoint 510M/520M Modules ever paired with an ally meter or Cordonel with pressure meter are warranted with the following limitations:

- When configured to the default installation setting of six transmissions of metrology and pressure per day and one update of temperature per day, the SmartPoint module is warranted to perform up to five (5) firmware upgrades for the SmartPoint module and up to five (5) firmware upgrades for the ally meter or Cordonel (with pressure) meter;
- 2500 Operational Commands, where "**Operational Commands**" include on demand reads (such as consumption, pressure, temperature), an ally meter valve command, or a configuration command; and
- 15 Diagnostic Commands, which includes two-way communications tests and installations

for the first ten (10) years from Date of Installation at no cost. For the remaining five (5) years, Customer will pay the reduced Replacement Price of the then-current list price in effect at the time the product is accepted for return in accordance with the following schedule:

19. **Warranty Exceptions and No Implied Warranties.** This Sensus Limited Warranty does not include costs for removal or installation of products, or costs for replacement labor or materials, which are the responsibility of the Customer. The warranties in this Sensus Limited Warranty do not apply to and Sensus has no liability for goods that have been: installed improperly or in non-recommended installations; installed to a socket that is not functional, or is not in safe operating condition, or is damaged, or is in need of repair; tampered with; modified or repaired with parts or assemblies not certified in writing by Sensus, including without limitation, communication parts and assemblies; improperly modified or repaired (including as a result of modifications required by Sensus); converted; altered; damaged; read by equipment not approved by Sensus; for water meters, used with substances other than water, used with non-potable water, or used with water that contains dirt, debris, deposits, or other impurities; subjected to misuse, improper storage, improper care, improper maintenance, or improper periodic testing (collectively, "**Exceptions**"). If Sensus identifies any Exceptions during examination, troubleshooting or performing any type of support on behalf of Customer, then Customer shall pay for and/or reimburse Sensus for all expenses incurred by Sensus in examining, troubleshooting, performing support activities, repairing, or replacing any Equipment that satisfies any of the Exceptions defined above. The above warranties do not apply in the event of Force Majeure, as defined in the Terms of Sale.

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20. **Limitation of Liability.** SENSUS' AGGREGATE LIABILITY IN ANY AND ALL CAUSES OF ACTION ARISING UNDER, OUT OF OR IN RELATION TO THIS AGREEMENT, ITS NEGOTIATION, PERFORMANCE, BREACH OR TERMINATION (COLLECTIVELY "**CAUSES OF ACTION**") SHALL NOT EXCEED THE TOTAL AMOUNT PAID BY CUSTOMER TO SENSUS UNDER THIS AGREEMENT. THIS IS SO WHETHER THE CAUSES OF ACTION ARE IN TORT, INCLUDING, WITHOUT LIMITATION, NEGLIGENCE OR STRICT LIABILITY, IN CONTRACT, UNDER STATUTE OR OTHERWISE.

AS A SEPARATE AND INDEPENDENT LIMITATION ON LIABILITY, SENSUS' LIABILITY SHALL BE LIMITED TO DIRECT DAMAGES. SENSUS SHALL NOT BE LIABLE FOR: (I) ANY INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES; NOR (II) ANY REVENUE OR PROFITS LOST BY CUSTOMER OR ITS AFFILIATES FROM ANY END USER(S), IRRESPECTIVE OF WHETHER SUCH LOST REVENUE OR PROFITS IS CATEGORIZED AS DIRECT DAMAGES OR OTHERWISE; NOR (III) ANY IN/OUT COSTS; NOR (IV) MANUAL METER READ COSTS AND EXPENSES; NOR (V) DAMAGES ARISING FROM MAINCASE OR BOTTOM PLATE BREAKAGE CAUSED BY FREEZING TEMPERATURES, WATER HAMMER CONDITIONS, OR EXCESSIVE WATER PRESSURE. "**IN/OUT COSTS**" MEANS ANY COSTS AND EXPENSES INCURRED BY CUSTOMER IN TRANSPORTING GOODS BETWEEN ITS WAREHOUSE AND ITS END USER'S PREMISES AND ANY COSTS AND EXPENSES INCURRED BY CUSTOMER IN INSTALLING, UNINSTALLING AND REMOVING GOODS. "**END USER**" MEANS ANY END USER OF ELECTRICITY/WATER/GAS THAT PAYS CUSTOMER FOR THE CONSUMPTION OF ELECTRICITY/WATER/GAS, AS APPLICABLE.

The limitations on liability set forth in this Agreement are fundamental inducements to Sensus entering into this Agreement. They apply unconditionally and in all respects. They are to be interpreted broadly so as to give Sensus the maximum protection permitted under law.

Years	Replacement Price	Years	Replacement Price
1 - 10	0%	14	65%
11	35%	15	75%
12	45%	>15	100%
13	55%		

<sup>7</sup> Notwithstanding the foregoing, valve and gear motor components of ally meters are not warranted beyond two thousand (2000) Valve State Operations, even if the warranty period provided herein has not yet expired. As used herein, "**Valve State Operations**" means adjustments of the Meter to open, close, or reduce flow.

# Sensus Limited Warranty

- General Product Coverage.** Unless otherwise provided herein, Sensus USA Inc. ("Sensus") warrants its products and parts to be free from defects in material and workmanship for one (1) year from the date of Sensus shipment and as set forth below. All products are sold to customer ("Customer") pursuant to Sensus' Terms of Sale, available at: [sensus.com/TC](https://sensus.com/TC) ("Terms of Sale").
- SR II® and accuSTREAM™ 5/8", 3/4" & 1" Meters** are warranted to perform to new meter accuracy level set forth in the SR II and accuSTREAM Data Sheets available at [sensus.com](https://sensus.com) for five (5) years from the date of Sensus shipment or until the registration shown below, whichever occurs first. Sensus further warrants that the SR II and accuSTREAM meters will perform to at least AWWA Repaired Meter Accuracy Standards for fifteen (15) years from the date of Sensus shipment or until the registration shown below, whichever occurs first:
 

	New Meter Accuracy	Repair Meter Accuracy
5/8" SR II Meter and accuSTREAM Meter	500,000 gallons	1,500,000 gallons
3/4" SR II Meter and accuSTREAM Meter	750,000 gallons	2,250,000 gallons
1" SR II Meter and accuSTREAM Meter	1,000,000 gallons	3,000,000 gallons
- SR II maincases** are warranted to be free from defects in material and workmanship for twenty-five (25) years from the date of Sensus shipment. **accuSTREAM maincases** will be free from defects in material and workmanship for fifteen (15) years from the date of Sensus shipment.
- ally® Meters** that register water flow are warranted to perform to the accuracy level set forth in the ally data sheet available at [sensus.com](https://sensus.com) for fifteen (15) years from the Date of Installation, but no longer than sixteen (16) years from date of manufacture, not including the meter's sensors, valve, and gear motor, which are warranted under different terms described below. As used herein, "Date of Installation" means the date after which the ally Meter has been out of empty pipe for seven (7) consecutive days, as those days are measured by the ally Meter and stored in the meter's nonvolatile memory.
- iPERL® Meters** that register water flow are warranted to perform to the accuracy levels set forth in the iPERL data sheet available at [sensus.com](https://sensus.com) for twenty (20) years from the date of Sensus shipment. The iPERL System Component warranty does not include the external housing.
- Sensus OMNI™, OMNI+ Meters and Propeller Meters** are warranted to perform to as set forth in OMNI and Propeller data sheets for eighteen (18) months from the date of Sensus shipment.
- Sensus CordoneL Meters** are warranted to perform to the accuracy levels as set forth in the CordoneL data sheet available at [sensus.com](https://sensus.com) for twenty (20) years from the date of Sensus shipment. The CordoneL System Component warranty does not include the external housing.
- Sensus CordoneL maincases** are warranted to maintain their structural integrity for a period of twenty (20) years from the date of Sensus shipment.
- Sensus accuMAG™ and Hydroverse™ Meters** are warranted to be free from defects in material and workmanship, under normal use and service, for 18 months from the date of Sensus shipment or 12 months from startup, whichever occurs first.

- Sensus Registers** are warranted to be free from defects in material and workmanship from the date of Sensus shipment for the periods stated below or until the applicable registration for AWWA Repaired Meter Accuracy Standards, as set forth above, are surpassed, whichever occurs first:
 

5/8" thru 2" SR II, accuSTREAM Standard Registers	25 years
5/8" thru 2" SR II, accuSTREAM Encoder Registers	10 years
All HSPU, IMP Contactor, R.E.R. Elec. ROFI	1 year
Standard and Encoder Registers for Propeller Meters	1 year
OMNI and OMNI+ Registers with Battery	10 years

- Sensus Electric and Gas Meters** are warranted pursuant to the General Limited Warranty available at [sensus.com/TC](https://sensus.com/TC).

- Batteries, iPERL System Components, AMR and FlexNet® Communication Network AMI Interface Devices** are warranted to be free from defects in material and workmanship from the date of Sensus shipment for the period stated below:
 

Electronic TouchPad	10 years
Act-Pak® Remote Monitoring Instruments	1 year
Gas SmartPoint® Modules and Batteries	20 years <sup>1</sup>
7500 series Hand-Held Device	2 years
Vehicle Gateway Base Station (VGB) and other AMR Equipment	1 year
EasyLink Reader	1 Year
CPTP100	20 Years <sup>2</sup>
FlexNet Base Station (including the R100NA and M400 products)	1 year
RM4160	1 Year
iPERL System Battery and iPERL System Components	20 years <sup>3</sup>
Sensus® Electronic Register+™	20 years <sup>4</sup>
Sensus® Smart Gateway Sensor Interface	1 year <sup>5</sup>
SmartPoint® 510M/520M/515M/512M Modules and Batteries	20 year <sup>3</sup>

<sup>1</sup> Sensus will repair or replace non-performing Gas SmartPoint Modules (configured to the factory setting of six transmissions per day under normal system operation of up to one demand read to each SmartPoint Module per month and up to five firmware downloads during the life of the product) and batteries, for the first ten (10) years from the date of Sensus shipment, and for the remaining ten (10) years, at a prorated percentage, applied towards the published list prices in effect for the year product is accepted by Sensus under warranty conditions according to the following schedule:

Years	Replacement Price	Years	Replacement Price
1 – 10	0%	16	55%
11	30%	17	60%
12	35%	18	65%
13	40%	19	70%
14	45%	20	75%
15	50%	>20	100%

<sup>2</sup> Sensus will repair or replace non-performing CPTP100 modules (configured at factory setting of four transmissions per day under normal system operations of up to one demand read per month and up to five firmware downloads during the life of the product) and batteries.

<sup>3</sup> Sensus will repair or replace non-performing:

- iPERL System Batteries, and/or the iPERL System flowtube, the flow sensing and data processing assemblies, and the register ("iPERL System Components") with hourly reads manufactured after April 2018
- CordoneL System Batteries, the flow sensing and data processing assemblies, and the register ("CordoneL System Components")
- SmartPoint 510M/520M/515M/512M-PLS/522M Modules manufactured after April 2018 (configured to the factory setting of six transmissions per day under normal system operation of up to one demand read to each SmartPoint Module per month and up to five firmware downloads during the life of the product) and batteries, unless the SmartPoint 510M/520M/522M Module is ever paired with an ally Meter, which immediately amends the warranty terms to those described in Section 13

at no cost for the first fifteen (15) years from the date of Sensus shipment, and for the remaining five (5) years at a prorated percentage, applied towards the published list price in effect for the year the product is accepted by Sensus under the warranty conditions according to the following schedule:

Years	Replacement Price	Years	Replacement Price
1 – 15	0%	19	60%
16	30%	20	70%
17	40%	>20	100%
18	50%		

<sup>4</sup> Sensus will repair or replace non-performing Sensus Electronic Register+ with hourly reads for the first ten (10) years from the date of Sensus shipment, and for the remaining ten (10) years, at a prorated percentage, applied towards the published list prices in effect for the year product is accepted by Sensus under warranty conditions according to the following schedule:

Years	Replacement Price	Years	Replacement Price
1 – 10	0%	16	55%
11	30%	17	60%
12	35%	18	65%
13	40%	19	70%
14	45%	20	75%
15	50%	>20	100%

<sup>5</sup> Sensus® Smart Gateway Sensor Interface warranty valid only for analog Meter Sample Rates of four times per hour with a Standard Transmit Rate of hourly or greater for the analog channel(s).

# **EXHIBIT 8**

AFFIDAVIT OF PUBLICATION

STATE OF KENTUCKY

COUNTY OF WOODFORD

Before me, a Notary Public in and for said County and State,

this 27 day of November, 2023, came

Cathy Smith,

to me personally known, who being duly sworn, states that she is the

circulation clerk

of *The Woodford Sun*, a newspaper published in Versailles, Woodford

County, Kentucky, and that the attached advertisement was printed

in the issue(s) of:

November 22, 2023.

Cathy Smith  
Signature

Melanie Jordan KYNP 43531  
Notary Public

My Commission Expires: 1/18/2026

# the • classified • ads

DEADLINE: Noon Monday • 859-873-3211 • comp@woodfordsun.com  
 HELP WANTEDS • p. 10 REAL ESTATE • p. 10 PUBLIC NOTICES • p. 10 SERVICE DIRECTORY • p. 11

## COMMERCIAL RENTALS

MINI-WAREHOUSES: 3 Locations: Lexington Road, Crossfield & Bellview. Offering 6 sizes. Call Wilder Rentals at 879-9691.  
2,18,tfmw

MINI-WAREHOUSES  
 M.R. Storage, 390 Crossfield, 4'X10', 5'X10', 6'X10', 10'X10', 15'X10', 20'X10' Climate control storage units available.  
 Call 873-1276.  
3,22,tf

900 SQ. FT. OFFICE space on South Main Street. \$500 rent and \$500 deposit. Call 859-608-5565. 8,3,1f

## RESIDENTIAL RENTALS

All real estate advertising in this newspaper is subject to the Federal Fair Housing Act of 1988 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 preferences, limitations or discrimination."

This newspaper will not knowingly accept any advertising for real estate which is in violation of the law. All persons are hereby informed that all dwellings advertised in this newspaper are available on an equal opportunity basis.

BEAUTIFUL TOWNHOUSE in The Village. 2 bedroom, 1 1/2 bath. 1 car garage. Private fenced yard. Completely renovated. \$1,399.00/month. Deposit same. Call David 859-509-1810.  
10,12,1f

## EVENT SPACE RENTALS

WILSON'S POOL ROOM  
 Private event room available. Includes pool table, darts & exclusive bar.  
 Call Ben  
 873-0277 or 492-5659  
 for more details.  
10,19,1fp

## AUTOMOTIVE

WILL BUY JUNKED CARS and trucks. Wilson's Used Auto Parts. Call 859-873-3466.  
9,7,23-8,29,23p

## FOR SALE

FIREWOOD FOR SALE. 4 X 8 rick longbed. Will burn. Hardwood. Call Jessie Brown at 859-509-1530.  
9,21,9p

## SERVICES OFFERED

LEAF REMOVAL. Leaves removed from any size area. Will put in another area or removed. 859-509-1530. Jessie Brown.  
10,26,3tp

## HELP WANTED

other classifications which require investments in stocks, samples, merchandise or cash bond should be investigated thoroughly before money is paid out. Advertisers requiring a cash investment must so specify in their ad. Kindly report any exception to Classified Advertising Manager. Dial 873-3211, ext. 10.

RECEPTIONIST/SCAN/CLERK POSITION wanted for local CPA office. Duties will include, but not limited to: scanning of documents, filing, answering phones, greeting public, and general clerical work. Hours will be 9AM to 5PM, Monday-Friday, as well as half-days every other Saturday during tax season. Position will start November 27, with a pay rate of \$15/hour. If interested, please email resume and references to: cmpolly@centralkycpa.com  
11,16,2tp

HANDYMAN HELPER needed. Some experience helpful. 859-494-7058.  
10,27,6tp

## PUBLIC NOTICES

ASSUMED NAME CERTIFICATE OF ASSUMED BUSINESS NAME  
 Assumed Business Name: "LEETHA WYNNE LEWIS (ESTATE)" a non-living legal-fiction person; Registered at the Office of the Minnesota Secretary of State, File# 1425821300025, 11/06/2023; Name Holder & Primary Attorney-in-Fact; a woman: known as "leetha-wynne". Status: Active and in Good Standing; the Minnesota Assumed Name Certification of Record, Certificate of Existence and Registration for "LEETHA WYNNE LEWIS [ESTATE]" are under the FULL FAITH AND CREDIT CLAUSE & the EQUAL PROTECTION CLAUSE of the UNITED STATES CONSTITUTION. Durable Power of Attorney & Verified Declaration of the Name Holder for the Assumed Name with Liability Fee Schedule recorded 11/8/2023 in Woodford County, Kentucky, DOC NO: 219203. Primary Attorney-in-Fact: leetha-wynne; Successor Attorney-in-Fact: kathryn-blythe. Email: Leetha621@proton.me  
11,16,2t

VERSAILLES-MIDWAY-WOODFORD COUNTY BOARD OF ADJUSTMENTS PUBLIC HEARING NOTICE  
 Public Hearing Notice for December 4, 2023, at 6:30PM, Woodford County Courthouse, 103 S Main St, Versailles KY:  
 1. A & P Investments LLC, Tandy Three LLC & Peristyle LLC (dba Castle & Key Distillery) have filed a Conditional Use Permit Application on a tract of land containing 108.510ac located at 3025 Versailles Rd. The property is zoned A-1. The Applicant proposes the operation of an Agricultural Enterprise (Bourbon Storage, Special Event Facility and Organic Purification System).  
 2. EFD Properties LLC have filed a Conditional Use Permit Application on a tract of land containing

NOTICE OF PUBLIC HEARING  
 The Public Service Commission of Kentucky will hold a hearing beginning on Monday, December 11, 2023, at 9:00 a.m., Eastern Standard Time, for the purpose of cross-examination of witnesses in Case No. 2023-00191, which is the Electronic Application of Kentucky-American Water Company for an Adjustment of Rates, a Certificate of Public Convenience and Necessity for Installation of Advanced Metering Infrastructure, Approval of Regulatory and Accounting Treatments, and Tariff Revisions. This hearing will be

0.903ac located at 221 Wooldridge Ln. The property is zoned R-2. The Applicant proposes the operation of a Short Term Rental Establishment.  
 3. Marksberry Real Estate LLC have filed a Conditional Use Permit Application on a tract of land containing 0.156ac located at 217 Berry Ave. The property is zoned R-3. The Applicant proposes the operation of a Short Term Rental Establishment.  
 Applications and Plans are available for review at the Planning Commission Office, 103 S Main St, Suite 204, Versailles KY. (859) 873-8611.  
11,22,23,1t

NOTICE  
 SECTION 00100  
 ADVERTISEMENT FOR BIDS  
 City of Versailles  
 196 South Main St.  
 Versailles, Kentucky 40383

Separate sealed Bids for the Water Distribution System Low Pressure Improvements including 6,000 LF of 8" PVC water main (Base Bid), 1,000LF of 8" PVC water main (Additive Alternate) and all related appurtenances as described in the SPECIFICATIONS will be received by City of Versailles, 196 South Main St. Versailles, KY 40383 until 2:00 pm (EST Local Time) Thursday, December 14, 2023, and then publicly read aloud.  
 Bids will be received for a single prime Contract. Bids shall be on a unit price basis as indicated in the Bid Form. The Contract Documents may be examined at the following locations: KENTUCKY ENGINEERING GROUP, PLLC., 101 High Street, Versailles, Kentucky 40383

CITY OF VERSAILLES, 196 South Main St., Versailles, KY 40383  
 Issuing office for the Bidding Documents is: LYNN IMAGING - 328 Old Vine Street, Lexington, KY 40507, Phone: 859-255-1021, Website: www.lynnimaging.com. Printed copies of the Contract Documents may be obtained upon receipt of a non-refundable amount of \$200.00 for each complete set of documents. Bidding Documents are available by electronic download (as portable document format PDF files) for a non-refundable charge of \$100.00.

All bids must be made on required Bid Form and must be fully completed and executed with original signatures and corporate seals. All bidders must be listed as plan holder by the plan distributor.

Bidders must comply with President's Executive Orders No. 11246 and No. 11375 and any amendments or supplements to those Executive Orders. Attention of bidders is particularly called to the requirements as to conditions of employment to be observed under the contract, Section 3, Segregated Facility, Section 109 and E.O. 11246.

Bidders must certify 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 comply with 41 CFR 60-4 in regard to affirmative action and to insure equal opportunity to females and minorities, and all that are applicable. Minorities and small businesses are encouraged to submit bids on this project.

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

The City of Versailles reserves the right to waive any bidding informalities and to reject any or all bids, for any reason. The right is reserved by the Owner, in the exercise of its sole judgment to reject any or all Bids, and to re-advertise and award the Contract in the regular manner or to waive any informalities, irregularities, mistakes, errors, or omissions in any Bid received and to accept any Bid deemed to be responsive to this invitation and favorable to interests of the Owner.

The sealed bid for this project shall be clearly marked on the outside of the envelope: "Sealed Bid for Water Distribution System Low Pressure Improvements for the City of Versailles, Kentucky. The bid may be mailed to: City of Versailles, 196 South Main St. Versailles, KY 40383. A certified check or Bid Bond payable to the City of Versailles in the amount of five (5) percent of the Bid shall accompany the Bid.  
 The contract award will be made in writing to the lowest responsive and responsible bidder.

City of Versailles  
 Date: November 2023  
11,22,1t

NOTICE  
 The Board of Architectural Review Committee will hold a meeting at 6:30 p.m. on Tuesday, December 5, 2023 on the 2nd Floor of the Woodford County Courthouse. The following Public Hearings are listed on the agenda:

OLD BUSINESS:  
 1. Case #10-006-2023 - Certificate of Appropriateness: Naser Alamdari (owner) - 116 East Main St - OHB-2 District - Article VII, Section 720 - Owner is seeking to remodel/repair front façade, exterior side and rear elevations and new roof; rebuild rear deck and install new wood stairs on side of structure.

The above listed documents are available for review upon request to the staff of the Board of Architectural Review (located in Room 204 of the Woodford County Courthouse). The public is invited to attend and make known their support of or opposition to the requests listed as public hearings. Masks are optional.  
11,22,1t

NOTICE  
 ADVERTISEMENT FOR BIDS  
 SYSTEM IMPROVEMENTS PROJECT  
 SOUTH WOODFORD WATER DISTRICT  
 WOODFORD COUNTY, KENTUCKY  
 NOVEMBER 2023

Sealed proposals for the following work will be received by the South Woodford Water District at 117D Crossfield Drive, Versailles, Kentucky until 9:00 a.m. (local time) December 13, 2023, for furnishing labor and materials and performing all work as set forth in this Advertisement for Bids, General Conditions, Specifications and/or Drawings prepared by HMB Professional Engineers, Inc., 3 HMB Circle, US 460, Frankfort, Kentucky 40601.

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 upon is described as follows:

- Contract I - (KY 33 Pump Station Replacement) Furnish and installation of a prefabricated booster pump station, including site work, electrical, piping, demolition of existing pump station, SCADA System upgrade, etc.
- Contract II - (Automated Meter Reading System) Furnish, install and place into operation a complete Automated Meter Reading System, including approximately 1,765 AMR meters.

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

- South Woodford Water District  
 117D Crossfield Drive  
 Versailles, KY 40383
- HMB Professional Engineers, Inc.  
 3 HMB Circle, US 460  
 Frankfort, KY 40601

Printed or electric copies of the Bidding Documents may be obtained from LYNN IMAGING, 328 Old Vine Street, Lexington, Kentucky 40507, upon payment as follows:

Contract I (KY 33 Pump Station Replacement)  
 South Woodford Water District  
 300 per set (Hard Copy); \$200 per set (Electronic Copy)

Contract II (Automated Meter Reading System)  
 South Woodford Water District  
 \$250 per set (Hard Copy); \$200 per set (Electronic Copy)

The phone number for LYNN IMAGING is (859) 226-5850. Note: Additional shipping charges may apply.

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

"Sealed proposal for System Improvements Project - South Woodford Water District Designate either Contract I or Contract II

Not to be opened until 9:00 a.m. (local time), December 13, 2023

(time and date of bid opening)

"The following addenda have been received and considered in the enclosed proposal:"

Addendum No.  
 Addendum No.  
 Addendum No.

Time allowed for completion of Contract I (KY 33 Pump Station Replacement) is 60 calendar days. Time allowed for completion of Contract II (AMR System) is 270 calendar days.

If forwarded by mail, the sealed envelope containing the proposal must be enclosed in another envelope and mailed to the South Woodford Water District, 117D Crossfield Drive, Versailles, KY 40383 allowing sufficient time for such mailing to reach this address prior to the scheduled closing time for the receipt of proposals.

Bids shall be accompanied by a certified check or bid bond payable to the South Woodford Water District in an amount not less than five percent (5%) of the base bid. No bidder may withdraw his bid for a period of ninety (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 will not be considered and will be returned unopened to the bidder.

The South Woodford Water District reserves the right to reject any and all bids and to waive formalities and any bid that is obviously unbalanced may be rejected.

Barry Drury  
 Chairman  
11,22,1t

NOTICE  
 CITY OF VERSAILLES, KENTUCKY  
 BUILDING STANDARDS AND  
 DOWNTOWN DEVELOPMENT  
 COMMITTEE MEETING

NOTICE IS HEREBY GIVEN THAT THERE WILL BE A MEETING OF THE CITY OF VERSAILLES BUILDING STANDARDS AND DOWNTOWN DEVELOPMENT COMMITTEE. THIS MEETING WILL BE HELD ON WEDNESDAY NOVEMBER 29, 2023 AT 5:00 P.M THIS MEETING

DOWNTOWN DEVELOPMENT MEETING  
 continues on p. 11

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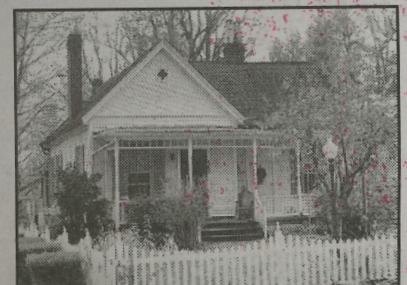
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## REAL ESTATE AUCTION

SATURDAY, DECEMBER 2, 10:00 A.M.  
 HOME • BARN • ON LARGE LOT



# **EXHIBIT 9**



FRANZBERG

**Bid Tabulation**  
**Contract II - AMR System**  
**South Woodford Water District**  
**Bid Date: December 13, 2023 @ 9:00 AM local time**  
**C.L. Thornburg**

Project: 4347.00  
 Date: 12/13/2023  
 Engineer: JR  
 Page: 1

Item No.	Item	Quantity	Unit	Unit Price	Total	Unit Price	Total	Unit Price	Total	Unit Price	Total
1	Furnish 5/8"x3/4" Radio Read Water Meter - Static	1,160	EA	\$137.70	\$159,732.00						
2	Furnish 1" Radio Read Water Meter - Static	605	EA	\$213.70	\$129,288.50						
3	Single Port Meter Transceiver Unit	1,765	EA	\$146.20	\$258,043.00						
4	Install 3/4" AMR Meter and Transceiver Unit (Transceiver Unit mounted below bid)	1,141	EA	\$70.00	\$79,870.00						
5	Install 1" AMR Meter and Transceiver Unit (Transceiver Unit mounted below bid)	596	EA	\$70.00	\$41,720.00						
6	Automated Meter Reading (AMR) Drive-By System, including complete AMR equipment, software, installation, training, annual software support and other items necessary for a fully Automated Meter Reading System, as described in specifications	1	LS	\$74,145.00	\$74,145.00						
<b>TOTAL BASE BID</b>					<b>\$742,798.50</b>		<b>\$0.00</b>		<b>\$0.00</b>		<b>\$0.00</b>

This is to state that the above is an accurate tabulation of bids received on December 13, 2023 by the South Woodford Water District for Contract II - AMR Project

Signed  
 Jeff Reynolds  
 Kentucky PE No. 20469



Indicates an error in the contractors bid.



# **EXHIBIT 10**



December 14, 2023

David Hudson  
South Woodford Water District  
117 D Crossfield Drive  
Versailles, KY 40383

3 HMB Circle  
US 460  
Frankfort, KY 40601  
Office: (502) 695-9800  
Fax: (502) 695-9810  
www.hmbpe.com

Re: System Improvements Project  
Award Recommendation  
HMB Project No. 4347.00/.01

Dear Mr. Hudson:

As you are aware, bids for the above referenced project were received and publicly read on Wednesday, December 13, 2023. The low bidder for Contract I (KY 33 Pump Station Replacement) was United Pipeline from Tompkinsville, KY with a bid of \$680,400. The low bidder for Contract II (AMR System) was CITCO Water from Lexington, KY with a bid of \$742,798.50. Based on HMB's previous experience working with both contractors, HMB believes they are qualified to do the work required for this project. Therefore, it is HMB's recommendation that these projects be awarded to United Pipeline and CITCO Water.

If you have any questions regarding this matter, please do not hesitate to contact me at (502) 695-9800.

Sincerely,  
**HMB Professional Engineers, Inc.**

Jeff Reynolds, PE  
Project Manager

Highway Engineering

Structural Engineering

Water & Wastewater

Site Development

Right-of-Way

Master Planning

Environmental Planning

Surveying

Project Management

Cost Estimation

Construction Inspection

Aviation Services

Environmental Remediation

Landscape Architecture

# **EXHIBIT 11**

**RESOLUTION 2024-01-09-3**

**A RESOLUTION OF THE BOARD OF COMMISSIONERS OF SOUTH WOODFORD COUNTY WATER DISTRICT AWARDDING CONTRACT II – AUTOMATED METER READING SYSTEM OF THE SYSTEM IMPROVEMENTS PROJECT**

**WHEREAS**, South Woodford County Water District caused to be published in the November 22, 2023 edition of the *Woodford Sun* in accordance with the provisions of KRS Chapter 424 an advertisement for bids on Contract II – Automated Meter Reading System of the Systems Improvement Project;

**WHEREAS**, South Woodford County Water District received only one bid on Contract II;

**WHEREAS**, on December 13, 2023, South Woodford County Water District opened the bid received on Contract II – Automated Meter Reading System;

**WHEREAS**, C.I. Thornburg, Inc. of Huntington, West Virginia, submitted a responsive bid of \$742,798.50;

**WHEREAS**, Haworth-Meyer-Boleyn Professional Engineers, Inc., the project engineer, has reviewed the submitted bids and has recommended that Contract II – Automated Meter Reading System be awarded to C.I. Thornburg, Inc.; and,

**WHEREAS**, South Woodford County Water District Board of Commissioners finds that Contract II – Automated Meter Reading System should be awarded to C.I. Thornburg, Inc. subject to the Kentucky Public Service Commission’s issuance of an Order granting a certificate of public convenience and necessity to South Woodford County Water District for the System Improvements Project and authorizing South Woodford County Water District to execute an Assistance Agreement with the Kentucky Infrastructure Authority for KIA Loan B22-02;

**NOW, THEREFORE, IT IS HEREBY RESOLVED BY THE BOARD OF COMMISSIONERS OF SOUTH WOODFORD COUNTY WATER DISTRICT 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 C.I. Thornburg, Inc., of Huntington, West Virginia, in the amount of \$742,798.50 to be the lowest responsive and responsible bid and awards Contract II – Automated Meter Reading System to this firm, contingent upon the Kentucky Public Service Commission issuing an order granting a certificate of public convenience and necessity to South Woodford County Water District for the System Improvements Project and authorizing South Woodford County Water District to execute an Assistance Agreement with the Kentucky Infrastructure Authority for KIA Loan B22-02.

ADOPTED BY THE BOARD OF COMMISSIONERS OF SOUTH WOODFORD COUNTY WATER DISTRICT at a meeting held on January 9, 2024, signed by the Chairman, and attested by the Secretary.

  
\_\_\_\_\_  
David Hudson, Acting Chairman

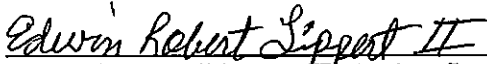
ATTEST:

  
\_\_\_\_\_  
Edwin Robert Lippert II, Acting Secretary

**CERTIFICATION**

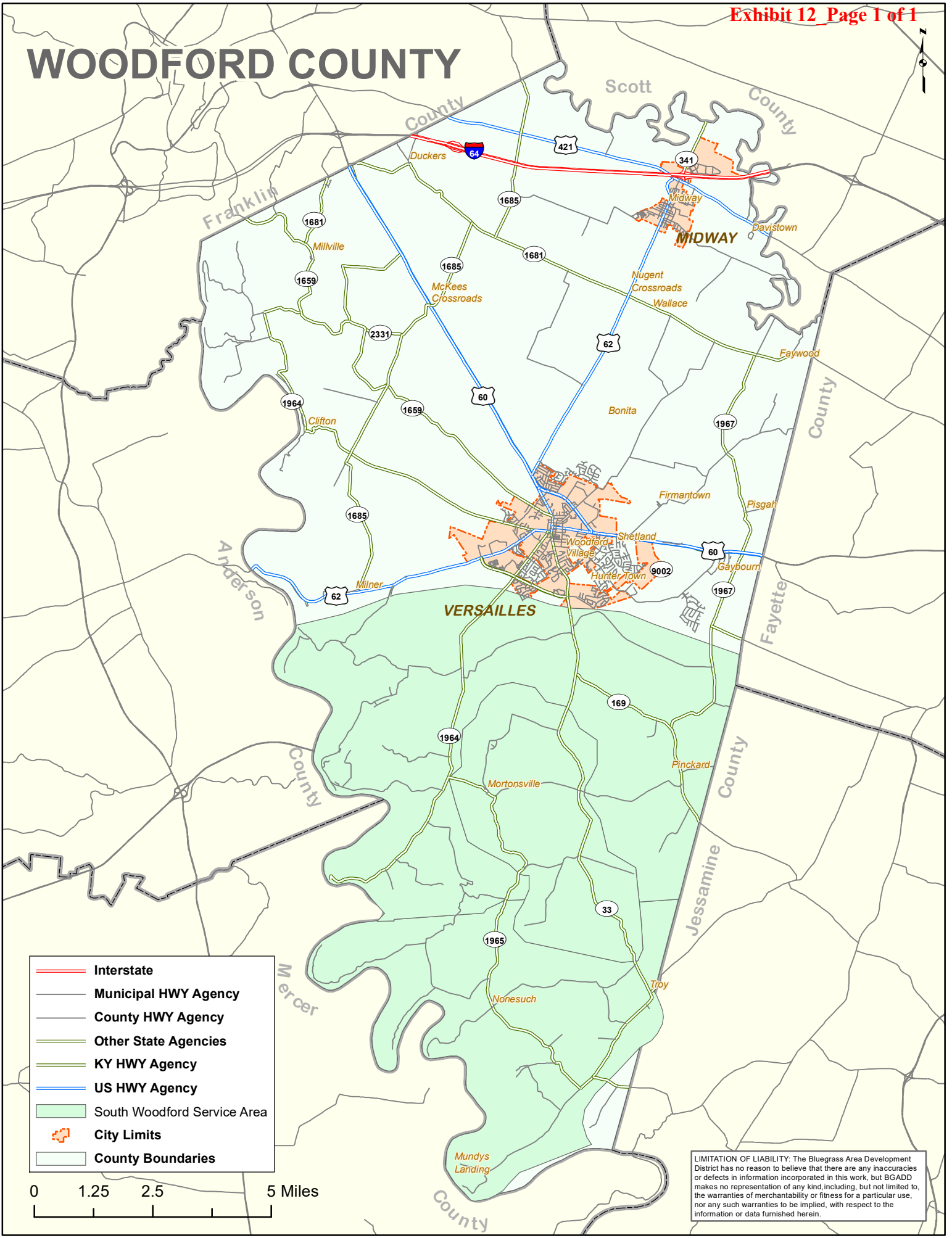
I, the undersigned, hereby certify that I am the duly qualified and acting Secretary of the South Woodford County Water District; that the foregoing is a full, true and correct copy of a Resolution adopted by the Board of Commissioners of the South Woodford County Water District at a meeting duly held on January 9, 2024; that said official action appears as a matter of public record in South Woodford County Water District's official records or journal; that said meeting was held in accordance with all applicable requirements of Kentucky law, including KRS 61.810, 61.815, 61.820 and 61.823; that a quorum was present at said meeting; that said official action has not been modified, amended, revoked or repealed and is now in full force and effect.

WITNESS my hand this 9th day of January 2024.

  
\_\_\_\_\_  
Edwin Robert Lippert II, Acting Secretary

# **EXHIBIT 12**

# WOODFORD COUNTY



- Interstate
- Municipal HWY Agency
- County HWY Agency
- Other State Agencies
- KY HWY Agency
- US HWY Agency
- South Woodford Service Area
- City Limits
- County Boundaries

0 1.25 2.5 5 Miles

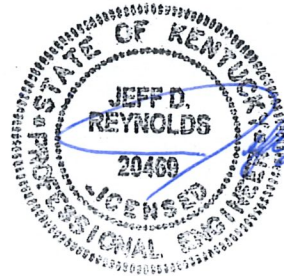
LIMITATION OF LIABILITY: The Bluegrass Area Development District has no reason to believe that there are any inaccuracies or defects in information incorporated in this work, but BGADD makes no representation of any kind, including, but not limited to, the warranties of merchantability or fitness for a particular use, nor any such warranties to be implied, with respect to the information or data furnished herein.



# **EXHIBIT 13**

SYSTEM IMPROVEMENTS PROJECT  
SOUTH WOODFORD WATER DISTRICT  
WOODFORD COUNTY, KENTUCKY

CONTRACT II – AUTOMATED METER READING SYSTEM



NOVEMBER 2023

HMB #4347.00



3 HMB Circle, US 460  
Frankfort, KY 40601  
(502) 695-9800



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ADVERTISEMENT FOR BIDS

SYSTEM IMPROVEMENTS PROJECT  
SOUTH WOODFORD WATER DISTRICT  
WOODFORD COUNTY, KENTUCKY

NOVEMBER 2023

Sealed proposals for the following work will be received by the South Woodford Water District at 117D Crossfield Drive, Versailles, Kentucky until 9:00 a.m. (local time) December 13, 2023, for furnishing labor and materials and performing all work as set forth in this Advertisement for Bids, General Conditions, Specifications and/or Drawings prepared by HMB Professional Engineers, Inc., 3 HMB Circle, US 460, Frankfort, Kentucky 40601.

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 upon is described as follows:

- Contract I – (KY 33 Pump Station Replacement) Furnish and installation of a prefabricated booster pump station, including site work, electrical, piping, demolition of existing pump station, SCADA System upgrade, etc.
- Contract II – (Automated Meter Reading System) Furnish, install and place into operation a complete Automated Meter Reading System, including approximately 1,765 AMR meters.

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

South Woodford Water District  
117D Crossfield Drive  
Versailles, KY 40383

HMB Professional Engineers, Inc.  
3 HMB Circle, US 460  
Frankfort, KY 40601

Printed or electric copies of the Bidding Documents may be obtained from LYNN IMAGING, 328 Old Vine Street, Lexington, Kentucky 40507, upon payment as follows:

Contract I (KY 33 Pump Station Replacement) South Woodford Water District	\$300 per set (Hard Copy); \$200 per set (Electronic Copy)
Contract II (Automated Meter Reading System) South Woodford Water District	\$250 per set (Hard Copy); \$200 per set (Electronic Copy)

The phone number for LYNN IMAGING is (859) 226-5850. Note: Additional shipping charges may apply.

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

"Sealed proposal for System Improvements Project – South Woodford Water District  
Designate either Contract I or Contract II

Not to be opened until 9:00 a.m.(local time), December 13, 2023  
(time and date of bid opening)

"The following addenda have been received and considered in the enclosed proposal:"

Addendum No. \_\_\_                      Addendum No. \_\_\_                      Addendum No.

Time allowed for completion of Contract I (KY 33 Pump Station Replacement) is 60 calendar days.  
Time allowed for completion of Contract II (AMR System) is 270 calendar days.

If forwarded by mail, the sealed envelope containing the proposal must be enclosed in another envelope and mailed to the South Woodford Water District, 117D Crossfield Drive, Versailles, KY 40383 allowing sufficient time for such mailing to reach this address prior to the scheduled closing time for the receipt of proposals.

Bids shall be accompanied by a certified check or bid bond payable to the South Woodford Water District in an amount not less than five percent (5%) of the base bid. No bidder may withdraw his bid for a period of ninety (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 will not be considered and will be returned unopened to the bidder.

The South Woodford Water District reserves the right to reject any and all bids and to waive formalities and any bid that is obviously unbalanced may be rejected.

Barry Drury  
Chairman

## INSTRUCTION TO BIDDERS

BIDS will be received by See Advertisement (herein called the "OWNER"), at See Advertisement until See Advertisement 20\_\_\_\_, and then at said office publicly opened and read aloud.

Each BID must be submitted in a sealed envelope, addressed to See Advertisement at \_\_\_\_\_. Each sealed envelope containing a BID must be plainly marked on the outside as BID for \_\_\_\_\_ and the envelope should bear on the outside the BIDDER'S name, address, and license number if applicable, and the name of the project for which the BID is submitted. If forwarded by mail, the sealed envelope containing the BID must be enclosed in another envelope addressed to the OWNER at \_\_\_\_\_ See Advertisement \_\_\_\_\_.

All BIDS must be made on the required BID form. All blank spaces for BID prices must be filled in, in ink or typewritten, and the BID form must be fully completed and executed when submitted. Only one copy of the BID form is required.

The OWNER may waive any informalities or minor defects or reject any and all BIDS. Any BID may be withdrawn prior to the above scheduled time for the opening of BIDS or authorized postponement thereof. Any BID received after the time and date specified shall not be considered. No BIDDER may withdraw a BID within 90 days after the actual date of the opening thereof. Should there be reasons why the contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the OWNER and the BIDDER.

BIDDERS must satisfy themselves of the accuracy of the estimated quantities in the BID Schedule by examination of the site and a review of the drawings and specifications including ADDENDA. After BIDS have been submitted, the BIDDER shall not assert that there was a misunderstanding concerning the quantities of WORK or of the nature of the WORK to be done.

The OWNER shall provide to BIDDERS prior to BIDDING, all information which is pertinent to, and delineates and describes, the land owned and rights-of-way acquired or to be acquired.

The CONTRACT DOCUMENTS contain the provisions required for the construction of the PROJECT. Information obtained from an officer, agent, or employee of the OWNER or any other person shall not affect the risks or obligations assumed by the CONTRACTOR or relieve the contractor from fulfilling any of the conditions of the contract.

Each BID must be accompanied by a BID bond payable to the OWNER for five percent (5%) of the total amount of the BID. As soon as the BID prices have been compared, the OWNER will return the BONDS of all except the three lowest responsible BIDDERS. When the Agreement is executed the bonds of the two remaining unsuccessful BIDDERS will be returned. The BID BOND of the successful BIDDER will be retained until the payment BOND and performance BOND have



been executed and approved, after which it will be returned. A certified check may be used in lieu of a BID BOND.

A performance BOND and a payment BOND each in the amount of 100 percent of the CONTRACT PRICE, with a corporate surety approved by the OWNER, will be required for the faithful performance of the contract. Performance BOND must be valid for one year beyond date of acceptance of the completed project.

Attorneys-in-fact who sign BID BONDS or payment BONDS and performance BONDS must file with each BOND a certified and effective dated copy of their power of attorney.

The party to whom the contract is awarded will be required to execute the Agreement and obtain the performance BOND and payment BOND within ten (10) calendar days from the date when NOTICE OF AWARD is delivered to the BIDDER. The NOTICE OF AWARD shall be accompanied by the necessary Agreement and BOND forms. In case of failure of the BIDDER to execute the Agreement, the OWNER may consider the BIDDER in default, in which case the BID BOND accompanying the proposal shall become the property of the OWNER.

The OWNER within ten (10) days of receipt of acceptable performance BOND, payment BOND and Agreement signed by the party to whom the Agreement was awarded shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the OWNER not execute the Agreement within such period, the BIDDER may by WRITTEN NOTICE withdraw the signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the OWNER.

The NOTICE TO PROCEED shall be issued within ten (10) days of the execution of the Agreement by the OWNER. Should there be reasons why the NOTICE TO PROCEED cannot be issued within such period, the time may be extended by mutual agreement between the OWNER AND CONTRACTOR. If the NOTICE TO PROCEED has not been issued within the ten (10) day period or within the period mutually agreed upon, the CONTRACTOR may terminate the Agreement without further liability on the part of either party.

The OWNER may make such investigations as deemed necessary to determine the ability of the BIDDER to perform the WORK, and the BIDDER shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any BID if the evidence submitted by, or investigation of, such BIDDER fails to satisfy the OWNER that such BIDDER is properly qualified to carry out the obligations of the Agreement and to complete the WORK contemplated therein.

A conditional or qualified BID will not be accepted.

Award will be made to the lowest, responsive, responsible BIDDER.

All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the PROJECT shall apply to the contract throughout.

Each BIDDER is responsible for inspecting the site and for reading and being thoroughly familiar with the CONTRACT DOCUMENTS. The failure or omission of any BIDDER to do any of the foregoing shall in no way relieve any BIDDER from any obligation in respect to its BID.

The low BIDDER shall supply the names and addresses of major material SUPPLIERS and SUBCONTRACTORS when required to do so by the OWNER.

The ENGINEER is HMB Professional Engineers. The ENGINEER'S address is 3 HMB Circle, US 460, Frankfort, KY 40601.

**BID FORM**

**CONTRACT II – AUTOMATED METER READING SYSTEM  
SYSTEM IMPROVEMENTS PROJECT  
SOUTH WOODFORD WATER DISTRICT**

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**ARTICLE 1 – BID RECIPIENT**

1.01 This Bid is submitted to:

**South Woodford Water District, 117 D Crossfield Drive, Versailles, KY 40383**

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 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.

E. 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.

- F. 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.
- G. 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.
- H. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- I. 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 following price(s):

**THE BIDDER SHALL BE AWARE THAT MATERIALS PERMANENTLY INCORPORATED INTO THIS PROJECT ARE EXEMPT FROM SALES AND USE TAX.**

The following Base Bid items include a general description of each bid item. For a detailed description of work to be included in each bid item see the Measurement and Payment Section; Section 01150 of the specifications.

**BASE  
BID**

Item No.	Item	Quantity	Unit	Unit Price	Total
1	Furnish 5/8"x3/4" Radio Read Water Meter - Static	1,160	EA		\$
2	Furnish 1" Radio Read Water Meter - Static	605	EA		\$
3	Single Port Meter Transceiver Unit	1,765	EA		\$
4	Install 3/4" AMR Meter and Transceiver Unit (Transceiver Unit mounted below lid)	1,141	EA		\$
5	Install 1" AMR Meter and Transceiver Unit (Transceiver Unit mounted below lid)	596	EA		\$
6	Automated Meter Reading (AMR) Drive-By System, including complete AMR equipment, software, installation, training, annual software support and other items necessary for a fully Automated Meter Reading System, as described in specifications	1	LS		\$
					\$
<b>TOTAL BASE BID PRICE (Items 1 through 6)</b>					<b>\$</b>

(figures)

Dollars & Cents

(WORDS)

Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

**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.

{or}

~~6.01 Bidder agrees that the Work will be substantially complete on or before \_\_\_\_\_, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before \_\_\_\_\_.~~

~~{or}~~

~~6.01 Bidder agrees that the Work will be substantially complete within \_\_\_\_\_ calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within \_\_\_\_\_ calendar days after the date when the Contract Times commence to run.~~

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;

#### **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]*

\_\_\_\_\_

Attest:

*[Signature]*

\_\_\_\_\_

*[Printed name]*

\_\_\_\_\_

Title:

\_\_\_\_\_

Submittal Date:

\_\_\_\_\_

Address for giving notices:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Telephone Number:

\_\_\_\_\_

Fax Number:

\_\_\_\_\_

Contact Name and e-mail address:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## 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*): South Woodford Water District  
117D Crossfield Drive  
Versailles, KY 40383

BID

Bid Due Date:

Description: Contract II – Automated Meter Reading System  
System Improvements Project

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**

\_\_\_\_\_  
Bidder's Name and Corporate Seal (Seal) Surety's Name and Corporate Seal (Seal)

By: \_\_\_\_\_ By: \_\_\_\_\_  
Signature Signature (Attach Power of Attorney)

\_\_\_\_\_  
Print Name Print Name

\_\_\_\_\_  
Title Title

Attest: \_\_\_\_\_ Attest: \_\_\_\_\_  
Signature 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.

**NOTICE OF AWARD**

---

Date of Issuance:

Owner: South Woodford Water District      Owner's Contract No.

Engineer: HMB Professional Engineers, Inc.      Engineer's Project No.: 4347.00

Project: System Improvements      Contract Name: Contract II – AMR System

Bidder:

Bidder's Address:

**TO BIDDER:**

You are notified that Owner has accepted your Bid dated \_\_\_\_\_ for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

Contract II (Automated Meter Reading System) – South Woodford Water District \_\_\_\_\_.

*[describe Work, alternates, or sections of Work awarded]*

The Contract Price of the awarded Contract is: \$ \_\_\_\_\_ *[note if subject to unit prices, or cost-plus]*

unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

a set of the Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner [ 4 ] counterparts of the Agreement, fully executed by Bidder.
2. Deliver with the executed Agreement(s) the Contract security *[e.g., performance and payment bonds]* and insurance documentation as specified in the Instructions to Bidders and General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any):

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

---

Owner:      South Woodford Water District

Signature:

By:      Barry Drury

Title:      Chairman

Copy:      Engineer

CONTRACT AGREEMENT

THIS AGREEMENT, made this \_\_\_\_\_ day of \_\_\_\_\_, 2023

by and between South Woodford Water District  
(Owner)

acting through its Chairman hereinafter called  
(Mayor, Utility Commission, Chairman)

the OWNER and \_\_\_\_\_ doing business as  
(Contractor)

\_\_\_\_\_ of the city of \_\_\_\_\_,  
(an individual) (partnership) (a corporation)

\_\_\_\_\_ County, State of \_\_\_\_\_ hereinafter called the CONTRACTOR.

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

The CONTRACTOR will commence and complete the construction of

Contract II (Automated Meter Reading System) – South Woodford Water District

The CONTRACTOR will furnish all of the materials, supplies, tools, equipment, labor and other services necessary for the construction and completion of the project described herein.

The CONTRACTOR will commence work under this contract on or before the date to be specified by the Owner, in a written “Notice to Proceed” and will fully complete the project within 180 consecutive calendar days thereafter. The CONTRACTOR further agrees to pay as liquidated damages, the sum of \$ 1,000.00 for each consecutive calendar day that the work remains incomplete after the expiration date of this contract, as modified by Change Order.

The CONTRACTOR agrees to perform all of the WORK described in the CONTRACT DOCUMENTS for the sum of \$ \_\_\_\_\_, or as shown in the Bid Schedule.

The term “CONTRACT DOCUMENTS” means and includes the SPECIFICATIONS prepared or issued by HMB Professional Engineers, Inc.

The Advertisement for Bid, Information to Bidders, the signed copy of the Bid Schedule, the Bid Bond, the fully executed Performance Bond and Payment Bond, the General Conditions, Supplemental General Conditions, Specifications, the General Requirements, the Drawings and other Contract Documents are hereby referred to and by reference made a part of this CONTRACT as fully and completely as if the same were fully set forth herein and are mutually cooperative therewith.

The following ADDENDA are included as part of this Contract:

ADDENDUM NO. 1                      ADDENDUM NO. 2                      ADDENDUM NO. 3  
DATE: \_\_\_\_\_                      DATE: \_\_\_\_\_                      DATE: \_\_\_\_\_

The OWNER shall make progress payments as the work is completed, in accordance with the appropriate Articles of the General Conditions.

Final payment shall be due thirty (30) days after completion and acceptance of the work.

Before issuance of final certificate, the Contractor shall submit evidence satisfactory to the Owner that all payrolls, material bills, and other indebtedness connected with the work have been paid.

If, after the work has been substantially completed, full completion thereof is materially delayed through no fault of the Contractor, and the Engineer so certifies, the Owner shall, upon certificate of the Engineer and without terminating the contract, make payment of the balance due for that portion of the work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in three (3) copies each of which shall be deemed an original on the date first above written.

This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

\_\_\_\_\_  
CONTRACTOR

ATTEST:

\_\_\_\_\_  
Title  
(SEAL)

By \_\_\_\_\_  
Title

South Woodford Water District  
OWNER

ATTEST:

\_\_\_\_\_  
Title

By \_\_\_\_\_  
Chairman

PERFORMANCE BOND

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

CONTRACTOR (Name and Address):

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

OWNER (Name and Address):
South Woodford Water District
117D Crossfield Drive
Versailles, KY 40383

CONTRACT

Date:
Amount: \$
Description (Name and Location): Contract II – Automated Meter Reading System – System Improvements Project
South Woodford Water District

BOND

Bond Number:
Date (Not earlier than Contract Date):
Amount: \$
Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Company:
Signature: \_\_\_\_\_ (Seal)
Name and Title:

\_\_\_\_\_(Seal)
Surety's Name and Corporate Seal
By: \_\_\_\_\_
Signature and Title
(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

Attest: \_\_\_\_\_
Signature and Title

CONTRACTOR AS PRINCIPAL

SURETY

Company:
Signature: \_\_\_\_\_ (Seal)
Name and Title:

\_\_\_\_\_(Seal)
Surety's Name and Corporate Seal
By: \_\_\_\_\_
Signature and Title
(Attach Power of Attorney)

Attest: \_\_\_\_\_
Signature and Title:

EJCDC No. C-610 (2002 Edition)
Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, and the American Institute of Architects.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.
2. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 3.1.
3. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
  - 3.1. Owner has notified Contractor and Surety, at the addresses described in Paragraph 10 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
  - 3.2. Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 3.1; and
  - 3.3. Owner has agreed to pay the Balance of the Contract Price to:
    1. Surety in accordance with the terms of the Contract;
    2. Another contractor selected pursuant to Paragraph 4.3 to perform the Contract.
4. When Owner has satisfied the conditions of Paragraph 3, Surety shall promptly and at Surety's expense take one of the following actions:
  - 4.1. Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
  - 4.2. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
  - 4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and Contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
  - 4.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:
    1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
    2. Deny liability in whole or in part and notify Owner citing reasons therefor.
5. If Surety does not proceed as provided in Paragraph 4 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 4.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.
6. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To a limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:
  - 6.1. The responsibilities of Contractor for correction of defective Work and completion of the Contract;
  - 6.2. Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions or failure to act of Surety under Paragraph 4; and
  - 6.3. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.
7. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the 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 Owner or its heirs, executors, administrators, or successors.
8. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.
9. 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 Contractor Default or within two years after Contractor ceased working or within two years after 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 period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
10. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.
11. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
12. Definitions.
  - 12.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.
  - 12.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
  - 12.3. Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.
  - 12.4. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

FOR INFORMATION ONLY – Name, Address and Telephone  
Surety Agency or Broker  
Owner's Representative (engineer or other party)



PAYMENT BOND

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

CONTRACTOR (Name and Address):

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

OWNER (Name and Address):
South Woodford Water District
117D Crossfield Drive
Versailles, KY 40383

CONTRACT

Date:
Amount: \$
Description (Name and Location): Contract II - Automated Meter Reading System - System Improvements Project
South Woodford Water District

BOND

Bond Number:
Date (Not earlier than Contract Date):
Amount: \$
Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Payment Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Company:

Signature: \_\_\_\_\_ (Seal)
Name and Title:

\_\_\_\_\_, (Seal)
Surety's Name and Corporate Seal

By: \_\_\_\_\_
Signature and Title
(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

Attest: \_\_\_\_\_
Signature and Title

CONTRACTOR AS PRINCIPAL

SURETY

Company:

Signature: \_\_\_\_\_ (Seal)
Name and Title:

\_\_\_\_\_, (Seal)
Surety's Name and Corporate Seal

By: \_\_\_\_\_
Signature and Title
(Attach Power of Attorney)

Attest: \_\_\_\_\_
Signature and Title:

EJCDC No. C-615 (2002 Edition)
Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, the American Institute of Architects, the American Subcontractors Association, and the Associated Specialty Contractors.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to Owner, this obligation shall be null and void if Contractor:
  - 2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and
  - 2.2. Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
4. Surety shall have no obligation to Claimants under this Bond until:
  - 4.1. Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the addresses described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
  - 4.2. Claimants who do not have a direct contract with Contractor:
    1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
    2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
    3. Not having been paid within the above 30 days, have sent a written notice to Surety and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:
  - 6.1. Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
  - 6.2. Pay or arrange for payment of any undisputed amounts.
7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.
9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.
11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, 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.
12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.
14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. DEFINITIONS

- 15.1. Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and 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.
- 15.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 15.3. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

**FOR INFORMATION ONLY – Name, Address and Telephone  
Surety Agency or Broker:  
Owner's Representative (engineer or other party):**

**NOTICE TO PROCEED**

---

Owner: South Woodford Water District      Owner's Contract No.:

Contractor:      Contractor's Project No.:

Engineer: HMB Professional Engineers, Inc.      Engineer's Project No.: 4347.00

Project: System Improvements      Contract Name: Contract II – AMR Sytem

Effective Date of Contract:

---

**TO CONTRACTOR:**

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on [REDACTED], 20[REDACTED]. [see Paragraph 4.01 of the General Conditions]

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. In accordance with the Agreement, [the date of Substantial Completion is \_\_\_\_\_, and the date of readiness for final payment is \_\_\_\_\_] *or* [the number of days to achieve Substantial Completion is \_\_\_\_\_, and the number of days to achieve readiness for final payment is \_\_\_\_\_].

Before starting any Work at the Site, Contractor must comply with the following:  
[Note any access limitations, security procedures, or other restrictions]

---

Owner:      South Woodford Water District

Signature:

By:      Barry Drury

Title:      Chairman

Date Issued:

Copy:    Engineer

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. §§5501 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.H 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 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.
    - 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 11.01.C.2.a and 11.01.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 special 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 CONDITONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2013 Edition). All provisions that are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

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### ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

#### *SC-1.01 Defined Terms*

**SC 1.01.A.8** Add the following language at the end of last sentence of Paragraph 1.01A.8:

The Change Order form to be used on this Project is EJCDE C-941. Agency approval is required before Change Orders are effective.

**SC 1.01.A.48** Add the following language at the end of the last sentence of Paragraph 1.01.A.48:

A work Change Directive cannot change Contract Price or Contract Time without a subsequent Change Order.

**SC 1.01.A.49** Add the following new Paragraph after Paragraph 1.01A.48:

**Abnormal Weather** – Conditions of extreme or unusual weather for a given region, elevation, or season as determined by Engineer. Extreme or unusual weather that is typical for a given region, elevation, or season should not be considered Abnormal Weather Conditions.

### ARTICLE 2 – PRELIMINARY MATTERS

#### *SC-2.02 Copies of Documents*

**SC 2.02.A** Amend the first sentence of Paragraph 2.02.A. To read as follows:

Owner shall furnish to Contractor two copies of the Contract Documents (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF).

**SC 2.06.B** Delete Paragraph 2.06.B and replace it with the term *[Deleted]*

### ARTICLE 4 - COMMENCEMENT AND PROGRESS OF THE WORK

**SC 4.01.A** Amend the last sentence of Paragraph 4.01.A by striking out the following words:

In no event with 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.

SC 4.05.C.2 Amend Paragraph 4.05.C.2 by striking out the following text: “abnormal weather conditions;” and inserting the following text:

Abnormal Weather Conditions;

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

*SC-5.03 Subsurface and Physical Conditions*

SC 5.03 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 5.06 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 Liability Insurance

SC 6.03 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>
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Federal, if applicable (e.g., Longshoreman’s):	<u>Statutory</u>
--	------------------

Jones Act coverage, if applicable:

Bodily injury by accident, each accident	\$ <u>NA</u>
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Bodily injury by disease, aggregate	\$ <u>NA</u>
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Employer’s Liability:

Bodily injury, each accident	\$ <u>2,000,000</u>
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Bodily injury by disease, each employee	\$ <u>2,000,000</u>
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Bodily injury/disease aggregate	\$ <u>2,000,000</u>
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For work performed in monopolistic states, stop-gap liability coverage shall be endorsed to either the worker’s compensation or commercial general liability policy with a minimum limit of:	\$ <u>NA</u>
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Foreign voluntary worker compensation Statutory

2. Contractor's Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:

General Aggregate \$ 2,000,000

Products - Completed Operations Aggregate \$ 1,000,000

Personal and Advertising Injury \$ 1,000,000

Each Occurrence (Bodily Injury and Property Damage) \$ 1,000,000

3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

Bodily Injury:

Each person \$ 1,000,000

Each accident \$ 1,000,000

Property Damage:

Each accident \$ 1,000,000

[or]

Combined Single Limit of \$ 1,000,000

4. Excess or Umbrella Liability:

Per Occurrence \$ 5,000,000

General Aggregate \$ 5,000,000

5. Contractor's Pollution Liability:

Each Occurrence \$ NA

General Aggregate \$ NA

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:

**7. Contractor’s Professional Liability:**

(Required when work performed by a Professional Engineer or Land Surveyor by Contractor or Sub-Contractor)

Each Claim	\$ <u>1,000,000</u>
Annual Aggregate	\$ <u>1,000,000</u>

*SC-6.05 Property Insurance*

**SC-6.05.A.1 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: None

**ARTICLE 7 – CONTRACTOR’S RESPONSIBILITIES**

*SC-7.02 Labor; Working Hours*

**SC-7.02.B. Add the following new subparagraphs immediately after Paragraph 7.02.B:**

- B. In the absence of any Laws or Regulations to the contrary, Contractor may perform the Work on holidays, during any or all hours of the day, and on any or all days of the week, at Contractor's sole discretion.

**SC 7.04.A Amend the third sentence of Paragraph 7.04.A by striking out the following words:**

Unless the specifications or description contains or is followed by words reading that no like, equivalent, or ‘or-equal’ item is permitted.

**SC 7.04.A.1 Amend the last sentence of Paragraph a.3 by striking out “and;” and adding a period at the end of Paragraph a.3.**

**SC 7.04.A.1 Delete paragraph 7.04.A.1.a.4 in its entirety.**

**SC 7.06.A Amend Paragraph 7.06.A by adding the following text to the end of the Paragraph:**

The Contractor shall not award work valued at more than fifty percent of the Contract Price to Subcontractor(s), without prior written approval of the Owner.

**SC 7.06.B Delete paragraph 7.06.B in its entirety.**

**SC 7.06.E Amend the second sentence of Paragraph 7.06.E by striking out “Owner may also require Contractor to retain specific replacements; provided, however, that”.**

**ARTICLE 8 – OTHER WORK AT THE SITE**

**ARTICLE 10 – ENGINEER’S STATUS DURING CONSTRUCTION**

*SC-10.03 Project Representative*

**SC-10.03 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 Start-ups:
- 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 start-ups.
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 11 – AMENDING THE CONTRACT DOCUMENTS: CHANGES IN THE WORK**

**SC 11.07.C Add the following new Paragraph after Paragraph 11.07.B:**



All Contract Change Orders must be concurred in by Agency before they are effective.

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

*SC-13.01 Cost of the Work*

**SC 13.01.B.5.c 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 as determined by KYTC Current Equipment Rates found by contacting Chris Sutton @ chris.sutton2@ky.gov. 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-13.02 Allowances*

**SC 13.02.C Delete Paragraph 13.02.C in its entirety.**

**ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD**

*SC-15.01 Progress Payments*

**SC 15.01.B Amend the second sentence of Paragraph 15.01.B.1 by striking out the following text:  
“a bill of sale, invoice, or other.”**

**SC 15.01.B.3 Add the following language at the end of paragraph 15.01.B.3:**

**No payment will be made that would deplete the retainage, place in escrow any funds that are required, or invest the retainage for the benefit of the Contractor.**

**SC 15.01.B.4 Add the following new Paragraph after Paragraph 15.01.B.3:**

**The Application for Payment form to be used on this Project is EJCDC C-620. The Agency must approve all Applications for Payment before payment is made.**

**SC15.01.D.1 Delete Paragraph 15.01.D.1 in its entirety and insert the following in its place:**

**The Application for Payment with Engineer’s recommendations will be presented to the Owner and Agency for consideration. If both the Owner and Agency find the**

Application for Payment acceptable, the recommended amount less any reduction under the provisions of Paragraph 15.01.E will be approved. The Owner will make payment to the Contractor within five days of receipt of payment from KYTC.

SC-15.02 Contractor's Warranty of Title

**SC 15.02.A Amend Paragraph 15.02.A by striking out the following text: "no later than seven days after the time of payment by Owner" and insert "no later than the time of payment by Owner."**

SC-15.03 *Substantial Completion*

**SC 15.03.B 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.**

#### **ARTICLE 17 – FINAL RESOLUTION OF DISPUTES**

**SC-17.02 Add the following new paragraph immediately after Paragraph 17.01.**

##### **SC-17.02 Arbitration**

- A. All matters subject to final resolution under this Article will be decided by arbitration in accordance with the rules of *[insert name of selected arbitration agency]*, subject to the conditions and limitations of this paragraph. This agreement to arbitrate and any other agreement or consent to arbitrate entered into will be specifically enforceable under the prevailing law of any court having jurisdiction.**
- B. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitrator or arbitration provider, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the specific time required in this Article, or if no specified time is applicable within a reasonable time after the matter in question has arisen, and in no event shall any such demand be made after the date when institution of legal or equitable proceedings based on such matter in question would be barred by the applicable statute of limitations. The demand for arbitration should include specific reference to Paragraph SC-17.02.D below.**
- C. No arbitration arising out of or relating to the Contract shall include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer's consultants and the officers, directors, partners, agents, employees or consultants of any of them) who is not a party to this Contract unless:**

1. the inclusion of such other individual or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration; and
  2. such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings.
- D. The award rendered by the arbitrator(s) shall be consistent with the agreement of the parties, in writing, and include a concise breakdown of the award, and a written explanation of the award specifically citing the Contract provisions deemed applicable and relied on in making the award.
- E. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the Laws and Regulations relating to vacating or modifying an arbitral award.
- F. The fees and expenses of the arbitrators and any arbitration service shall be shared equally by Owner and Contractor.

SPECIAL CONDITIONS

1. PROJECT FUNDING

CONTRACTORS bidding the project should be aware that funding is provided by the Kentucky Infrastructure Authority Cleaner Water Program.

2. UNCLASSIFIED EXCAVATION

All excavation is unclassified. No extra payment will be allowed for rock excavation of any kind. It is the CONTRACTOR's responsibility to make any additional investigations to determine depth, location or competency of rock within the project area.

3. CONFLICTING SECTIONS/STATEMENTS IN CONTRACT DOCUMENTS

a. General

It shall be noted that if any provisions in these Contract Documents is in conflict and/or is inconsistent with any other section or provisions, then the most stringent shall apply per the interpretation of the ENGINEER and/or OWNER.

b. Hold Period on Bids

All bids shall remain valid for a period of 90 days. Any reference to a lesser period of time is incorrect.

4. CONTRACTOR'S INSURANCE CERTIFICATE

The following wording for the cancellation clause on the insurance certificate is required:

"Should any of the above described policies be canceled before the expiration date thereof, the issuing company will mail 15 days written notice to the certificate holder named to the left."

5. FEDERAL/STATE/LOCAL REGULATIONS

The CONTRACTOR shall abide by all local and state laws or ordinances to the extent that such requirements do not conflict with federal laws or regulations. Compliance with any and all applicable laws and/or regulations is strictly the CONTRACTOR's responsibility.

6. SILTATION AND SOIL EROSION

The CONTRACTOR shall make every effort during construction to minimize siltation and soil erosion and comply with all local and state codes that pertain to this project. Any applicable permits shall be the CONTRACTOR's responsibility to obtain, at no additional cost to the OWNER.

7. ROUGH CLEAN UP

- a. Rough clean up shall be performed on a daily basis concurring with the daily rate of production for pay items, amounts and/or quantities listed in the schedule of values and/or Bid Schedule.
- b. The CONTRACTOR is to provide sufficient labor and equipment for clean up as to not impede production schedules.
- c. Rough clean up shall be defined as follows:
  1. All open ditches shall be backfilled on a daily basis.
  2. Debris (rocks, roots, timber, etc.) shall be removed from the job site on a daily basis. This material may be stockpiled with the consent of the OWNER and the ENGINEER in designated locations. Any such locations shall be arranged by the CONTRACTOR with the written consent of the property owner.
  3. Remaining backfill material (soil) shall be windrowed back on top of the ditch line, compacted and leveled giving consideration for settlement.
- d. At the direction of the ENGINEER, OWNER, or their appointed representatives, the CONTRACTOR shall readdress areas if identified as not being adequate in the initial rough clean up process.

8. QUANTITIES OF MATERIALS

The quantities of materials listed on the Bid Schedule are estimates only and are subject to changes in the field. The CONTRACTOR shall verify these quantities before ordering materials. In the event of an under run or over run of materials, the CONTRACTOR shall be responsible for any shipping and/or restocking fees.

9. SHOP DRAWING REVIEW

Throughout these Specifications, all reference to Shop Drawing review by the ENGINEER, should read fourteen (14) days, not 30 days or any other number of days more or less than 14.

10. CONSTRUCTION PERIOD – ADVERSE WEATHER DAYS

The CONTRACTOR is to note that there are adverse weather days included within the allotted construction time. The number of days per month already included in the Construction Period is listed below. Adverse weather conditions should be expected to be equal to or less than those listed below per month, as these would be considered normal conditions and not subject to additional time for construction due to adverse weather. Any documented adverse weather conditions beyond the amount listed below may be considered, at the request of the CONTRACTOR, for additional construction time. Adverse weather for the purposes of this Contract shall be defined as days in which precipitation exceeds 0.1” and/or the average temperature is below 32 degrees F. Days not meeting these criteria during daylight hours shall not be considered as adverse weather days.

If the CONTRACTOR’s normal operations for the project do not include weekend and holiday work, then those days may not be counted as adverse weather days, regardless of actual recorded weather conditions. Adverse weather conditions on weekends and holidays may be considered by the OWNER for a contract time adjustment provided that the CONTRACTOR has provided a minimum of four (4) working days notice to the RO, ENGINEER and OWNER of his intention to work on a weekend and/or holiday.

Any day that the CONTRACTOR mobilizes forces to the project site and the RO is required to be on site for two (2) hours or longer shall not be considered for a claim of adverse weather. Any day that the CONTRACTOR chooses not to work due to weather or site conditions, but fails to notify the RO in a timely manner, shall not be considered for a claim of adverse weather.

The CONTRACTOR is required to report any days missed due to adverse weather conditions in the previous month at the monthly Progress Meetings. No days other than those reported by the CONTRACTOR at monthly Progress Meetings shall be considered for adverse weather time extensions.

The contract documents establish the documentation requirements for adverse weather days claims by the CONTRACTOR. Any claims not in accordance with those requirements shall not be considered.

The CONTRACTOR and the RO shall both record weather conditions at the project site on a daily basis and shall reconcile their notes and records at least weekly.

The normal adverse weather days are calculated using data from the National Oceanic and Atmospheric Administration and are as follows:

<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
15	12	9	8	8	7	8	7	6	5	7	11

Days in which the CONTRACTOR does not attempt to work, and which are not satisfactorily documented as an adverse weather day, will not be considered in any request for construction time extension by the CONTRACTOR.

11. ITEMS DELETED, REDUCED AND/OR INCREASED

The OWNER reserves the right to delete any bid item or, in the case of unit price items, delete, reduce or increase the quantities involved. Bidders shall be aware of this possibility and shall base their bids accordingly.

12. PROPERTY OWNER RELEASE

The OWNER reserves the right to require the CONTRACTOR to obtain a written, signed Release from any or all property owners impacted by the Work prior to final payment to the CONTRACTOR. The Release form is included in the Appendix and may be required from all property owners impacted by the project, regardless of whether work was performed on right-of-way or on easements.

13. BUILDER’S RISK AND WORKMEN’S COMPENSATION INSURANCE

The CONTRACTOR shall secure “All Risk” type Builder’s Risk Insurance for Work to be performed. Unless specifically authorized by the OWNER, the amount of such insurance shall not be less than the Contract Price totaled in the awarded Bid. The policy shall cover not less than the losses due to fire, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft and smoke during the Contract Time, and until the Work is accepted by the OWNER. The policy shall name as the insured the CONTRACTOR, the ENGINEER and the OWNER. The CONTRACTOR shall secure insurance that will protect him/her from claims set forth from the following: workmen’s compensations, disability benefit and other similar employee benefit acts.

14. APPROVED EQUAL CLAUSE

- a. Any reference to a specific equipment brand name within the Specifications or Drawings shall be deemed to include “or approved equal”.
- b. Delete any statement such as “No other manufacturers are acceptable” within the Specifications.

15. DISPOSAL OF TRENCH WATER

The CONTRACTOR shall not dispose of any trench water by allowing it to enter any sanitary sewer system without first obtaining written permission to do so from the owner of said system. Documentation of written permission must be provided to the ENGINEER and OWNER.

16. PREVAILING WAGE RATES

Due to the project funding of this project, prevailing wage rates will **NOT** be required.

17. GENERAL

- a. Reasonable care shall be taken by the CONTRACTOR during construction to avoid damage to existing vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees that 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. Property owners shall be notified by the CONTRACTOR prior to any alteration to existing trees and/or landscaping on their property.
- b. CONTRACTOR shall implement Best Management Practices as described in the Kentucky Best Management Practices for Construction Activities prepared by Division of Conservation and Division of Water, Natural Resources and Environmental Protection Cabinet.
- c. Installers of the AMR meters shall have experience installing this type of system and be able to demonstrate installation experience on at least three (3) similar projects.
- d. Installation of the AMR meters shall include meter adaptors or any other miscellaneous items required for a complete installation.
- e. Installation of the AMR meters shall include recording standard meter change out information including last reading, new reading, meter id, register id, etc.
- f. Installation of the AMR metes shall also include any programming, activation with gps coordinates, etc. as required.
- g. All existing meters removed shall remain the property of the Owner and delivered to the Owner.



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**SECTION 01150**  
**Measurement and Payment**

**PART 1 GENERAL**

- 1.1 The CONTRACTOR shall provide all necessary labor, materials, tools, equipment, insurances, and permits, etc., and perform all other related work, as may be required for the work in accordance with the applicable terms of these Specifications and other pertinent documents, etc.
- 1.2 The cost associated with the preparation of submittal and the preparation for and attendance at all project meetings shall be incidental to the work.
- 1.3 Items shown in the plan but not expressly described herein shall be considered incidental to the work.
- 1.4 Lump sum items shall be paid upon completion and acceptance of all work covered by the item. However, CONTRACTOR may submit an application for partial payment of lump sum items. Such application shall be in writing and shall define and provide justification for desired break down of the lump sum items. The application will be reviewed by the ENGINEER in a timely manner and any concerns will be discussed with the CONTRACTOR prior to issuing written agreement with the partial payment scheme. It is recommended that Partial Payment Applications be submitted and approval sought prior to the submission of the first invoice for the project.
- 1.5 The quantities shown are estimated. Only the actual quantities required, furnished, and installed and/or removed, will be eligible for payment. No minimum(s) is/are guaranteed.
- 1.6 The CONTRACTOR will NOT be paid for any items herein in excess of the estimated quantities or for any items not contained in the proposal(s) unless the CONTRACTOR has obtained WRITTEN authorization from the ENGINEER before proceeding with the work.
- 1.7 The various phases of contractual work that are required to complete the subject project must be performed in a most expeditious manner and to the satisfaction of the ENGINEER

**PART 2 PAY ITEMS**

**2.1 Installation of AMR Meter & Transceiver Unit**

- A. Measurement – Installation of AMR Meter & Transceiver Unit will be measured by an actual count of each size and type of service installed, tested, disinfected and accepted.
- B. Payment – Installation of AMR Meter & Transceiver Unit placed and accepted, measured as provided above, will be paid for at the contract unit price per each, which price and payment shall constitute full compensation for installing complete, testing, any required adaptors, recording standard meter change out information, any programming, activation with gps coordinates, etc. as required. Contractor shall furnish all equipment, tools, and incidentals necessary to complete the item.

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**SECTION 11100**  
**ELECTROMAGNETIC FLOW METER**

**PART 1 GENERAL**

**1.01 SCOPE**

The work covered by this Section consists of furnishing all labor, equipment and materials required to install, test and place into satisfactory operation the Electromagnetic Flow Meter as shown on the Drawings and detailed herein.

**1.02 SUBMITTALS**

- A. Submit shop drawings and engineering data in accordance with the requirements of Section 01340 of these Specifications.
- B. Operation and maintenance manuals shall be furnished in accordance with the requirements of Section 01730 of these Specifications.

**1.03 STORAGE AND PROTECTION**

- A. Flow meter and accessories shall be stored and protected in accordance with the manufacturer's recommendations. Flow meter shall not be stored outside or exposed to the weather.

**PART 2 PRODUCTS**

**2.01 ACCEPTABLE MANUFACTURERS**

The electromagnetic flow meter shall be an iPERL Meter as manufactured by Sensus, Inc. or approved equal.

**2.02 REGISTER**

The register must meet the following requirements:

- a. There must be 9 digits on the register face.
- b. There must be a low battery icon indicator on the register face.
- c. The register must include a low flow indicator on the register face (i.e. 9<sup>th</sup> digit).
- d. The odometers range must be x,xxx,xxx.xx gallons; xxx,xxx.xxx cubic feet; and xx,xxx.xxxx cubic meters.
- e. Barcoding must be provided on the meters' test tags.
- f. Barcoding must be provided on the shipment boxes.
- g. The register must not be separated from the body.
- h. The register must have a battery with a 20 year warranty (15 full/5 prorated).
- i. The register must conform to American Water Works Standard C-707 as most recently revised.

- j. The register must comply with Part 15 of the FCC Rules.
- k. The register must be of the straight reading type with no multiplier.
- l. The register must read in cubic feet, gallons or metric units
- m. The register must be capable of direct visual reading both at the meter and by remote reading utilizing a visual interrogation device that connects through to the water meter via a TouchPad located external to the meter, and/or by a SmartPoint module for remote based AMR/AMI.
- n. The LCD digits must use standard notation (billions, millions, and thousands separators and decimal points).
- o. The LCD must identify the AMR digit with a bar above the digit.
  - i. The display must remain on for 30 seconds then will turn off.
  - ii. Close and re-open the lid to view the display.
- p. The register must be integrated into the meter body to prevent removal to obtain free water.
- q. The register output data format must be 7-bit ASCII (American Standard Code for Information Interchange) digital, plus an even parity bit.
- r. Upon interrogation with a TouchPad or AMR/AMI product, the register must transmit an odometer reading containing 4 to 8 digits (field programmable) and a user defined alphanumeric identification of up to 12 characters (field programmable).
- s. Encoders with a mechanical brush contact or “optical-sensing” technology with the odometer wheel must not be acceptable.
- t. Change gears must not be allowed to calibrate the meter.
- u. A single register type must be used for any registration and all (5/8” - 1”) meter sizes.

### **2.03 METER**

The meter must meet the following requirements:

- a. The meter must have certification for compliance of NSF 61 and NSF-372.
- b. Serial numbers of all meters must be clearly stamped on the body of the meter.
- c. There must be no exposed bolts on the body.
- d. Proposed meters must be compliant with the appropriate AWWA standard for laying length.
- e. Meters must be tamper resistant.
- f. Meters must be tested for accuracy in the factory.
- g. The meters must not be shipped with water.
- h. The proposed meter must not contain any bronze or stainless steel in the meter body or flow tube.
- i. The meter must have empty pipe, magnetic tamper, leak, battery, and reverse flow alarms.

- j. The meter bid must meet or exceed all sections of the AWWA standard as appropriate for the supplied meter type.
- k. The meter you are bidding must be equipped with encoder devices designed to communicate with touchpads, AMR or AMI systems. (Pulse meters are not permitted)
- l. The body of the meter must be fully tested to withstand 200 psi working pressure.
- m. All parts of meter must be corrosion resistant.
- n. Main cases must be equipped with standard externally threaded straight pipe threads to aid installation using industry standard tailpiece assemblies.
- o. The maincase shall be made of composite plastic material.
- p. All materials in the measuring chamber housing and device measuring elements must be constructed of smoothly-finished, water-lubricated engineered plastics.
- q. The meter must use solid state technology to measure consumption.
- r. The meter shall measure the entire cross section of the flow tube.
- s. The flow tube shall not have any parts protruding inside the flow tube and/or impeding water flow.
- t. Consumption measurement should not be affected by:
  - i. Particulates in water
  - ii. Acoustical noise
  - iii. Pipe vibration
  - iv. Change in water temperature
  - v. Bubbles in water
- u. The meter must be an integrated unit that incorporates an electronic register and measuring device.
- v. The measuring device must be encased in an external housing.
- w. The register must be all electronic and programmable.
- x. The register must be hermetically sealed with a tempered glass cover.
- y. The warranty for the meter accuracy must be 20 years.
- z. The meter shall have a model rated for fire service and UL Listed.
- aa. The meter shall connect to a transmitter without wire terminations.

**2.04 ACCURACY CHART**

Meter Size	Normal Operating Flow	Low Flow Accuracy
5/8"	.18 - 25 gpm	.11 gpm
3/4"	.18 - 35 gpm	.11 gpm
1"	.4 - 55 gpm	.3 gpm

**2.05      WARRANTY**

The meter/register shall include a manufacturer's warranty of 20 years (15 full/5 prorated).

END OF SECTION

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**SECTION 11300  
METER READING EQUIPMENT**

**PART 1 GENERAL**

**1.01 SCOPE**

The work covered by this Section consists of furnishing all labor, equipment and materials required to install, test and place into satisfactory operation the Automated Meter Reading (AMR) Equipment and Operating Software as detailed herein.

The AMR provider shall include all costs for equipment, deployment, installation, configuration, testing and training.

**1.02 QUALIFICATION OF MANUFACTURER**

The AMR provider shall provide a ten (10) references of water utilities using the proposed system. References shall include how long the system has been in operation, size of the utility and the number of endpoints.

For reliability and meter reading integrity, the AMR provider shall be the sole manufacturer of the different components of the system (water meters, endpoints, meter reading equipment and meter reading software), and provide a turnkey system.

**1.02 SUBMITTALS**

- A. Submit shop drawings and engineering data in accordance with the requirements of Section 01340 of these Specifications.
- B. Operation and maintenance manuals shall be furnished in accordance with the requirements of Section 01730 of these Specifications.

**1.03 STORAGE AND PROTECTION**

- A. All equipment and accessories shall be stored and protected in accordance with the manufacturer's recommendations.

**PART 2 PRODUCTS**

**2.01 ACCEPTABLE MANUFACTURERS**

The AMR System and software shall be manufactured by Sensus Metering System or approved equal.

## **2.02 AMR SYSTEM FUNCTIONALITY REQUIREMENTS**

The AMR System shall be capable of meeting the following functionality requirements:

1. Meters shall be pre-qualified to operate with the AMR system.
2. The AMR system shall provide accurate meter readings from water meters, which will be used for billing customers.
3. The AMR system shall use radio frequency technology to transmit data and be capable of drive-by collection.
4. The AMR system proposed shall be compatible with meter brands qualified by AMR provider.
5. The AMR system shall be capable of two-way communication.
6. The AMR system shall be a communication component independent of the meter.
7. All system components shall operate over a temperature range of 25° F to 105° F, and a cyclical high humidity condensing atmosphere (0-100% relative humidity).
8. All applicable system components shall be FCC licensed and approved if the system operating frequency is within the FCC licensing range.
9. AMR provider shall furnish the AMR system with hand-held devices for AMR installation programming and mobile drive-by system for routine collection of meter readings. It shall be the AMR provider's responsibility to propose any components, ancillary services, etc., not addressed in this Request for Proposal to ensure a complete and fully functional system.
10. AMR provider shall furnish host software capable of importing/exporting flat files to/from a billing system.

## **2.03 AMR SYSTEM DESIGN FEATURES**

The AMR System shall include the following system design features:

1. The system shall operate as a wake up alert, or "poll-response" two-way network.
2. The system shall support off-cycle or on-demand reads.
3. The system shall be able to obtain short-interval readings (more frequently than hourly) to monitor and profile water consumption patterns.
4. Communication between endpoints and mobile receivers shall use primary, FCC-licensed frequencies. FCC licenses for the spectrum should already be obtained so there is no delay or uncertainty in the process.
5. The system shall have safeguards to maintain customer data confidentiality as well as integrity of the data being transmitted.
6. The minimum receive rate shall be no lower than 98.5% over a two month billing cycle.
7. The AMR system shall include data logging.

8. The AMR system shall include endpoints that transmit both the endpoint ID and register ID with the readings and alarms (port mismatch and tamper detection).
9. The AMR system shall include a separate endpoint ID for each port on a dual port endpoint.
10. The AMR system shall include cut wire or bad register connection alerts and reports.
11. The AMR system shall include a low battery alert and report.
12. The AMR system shall include a user configurable backflow alarm and report.
13. The AMR system shall include a non-route exception report (new meters on route).
14. The AMR system shall include a user configurable leak alert, alarm and report.
15. The AMR system shall include a register malfunction alert, alarm and report.
16. The AMR system shall include a high/low reading alert and report.
17. The AMR system shall include a consumption report.
18. The AMR system shall include a units of measure mismatch report (endpoints transmit their units of measure along with the reading).
19. The AMR system shall include meters with advanced alarm capability, including high resolution leak and backflow alarms as well as tampering and condition alarms.

## 2.04 ENDPOINTS

Features of the endpoints shall include the following:

1. For non-pit applications
  - a. The endpoint electronics shall be hermetically sealed in a high density polyethylene (HDPE) enclosure that is waterproof and provides operating temperature range of -30° F to 165°F (-34°C to 74°C).
2. For pit or vault applications:
  - The endpoint shall be water submersible, capable of operating in 100% condensing humidity and provides operating temperature range of -30° F to 165°F (-34°C to 74°C).
  - The endpoint antenna shall be designed to be installed through the industry standard 1¾" inch hole in a pit lid with no degradation of transmission range.
3. To avoid obsolescence, the endpoints shall utilize a configurable architecture that allows new technologies to be implemented.
4. The endpoint shall be capable of being received by either a handheld receiver, mobile receiver or fixed network receiver without special configuration or remanufacture.
5. Endpoints shall be capable of transmitting meter resolution as fine as 0.01 cubic feet for meters up to 1 inch, and as fine as 1 cubic foot for meters up to 8 inch.
6. Transmission power of the endpoints shall be up to 2 watts.
7. Receiver sensitivity of the endpoints shall be -115 dBm.
8. Endpoints shall be interoperable with competitive registers.



9. The endpoint shall provide maximum range and consistency when installed through a pit lid.
10. The endpoint shall be capable of installation below the pit lid.
11. The endpoint shall have a dual-port configuration.
12. The endpoint shall be capable of transmitting information from two different meters.
13. The endpoint shall transmit a separate endpoint ID and register ID for each port.
14. The endpoint shall have a 20 year unit and battery warranty.
15. The endpoint shall have an expected life greater than or equal to 20 years under normal use.
16. The endpoint shall have a low battery alert and alarm.
17. Programming parameters shall be configured and loaded into a hand held unit prior to endpoint installation.
18. The installer shall receive a confirmation after a successful endpoint programming.
19. The endpoint shall be able to connect to a different meter if it exchanged.
20. The integral endpoint antenna shall be located in the top housing and not adversely affected when fully submerged under water.
21. The wire connectors shall be free of water intrusion, corrosion, and failure over the system lifetime.
22. The endpoint shall be permanently labeled with the manufacturer's name, model number, endpoint identification number, tamper warning, required FCC labeling, input/output connections, date of manufacture, part number, manufacturer address, and firmware version.
23. The endpoint shall not require any special tools to install.
24. The endpoint shall have a TouchCoupler to simplify installation.
25. The endpoint shall be activated using a handheld device.
26. Endpoint activation software shall be simple and intuitive.
27. The endpoint shall have the ability to record and transmit GIS coordinates.
28. The endpoint shall be easily uninstalled in case of maintenance.
29. The endpoint shall be separate from the meter.
30. The endpoint shall be able to be installed in any pit location.
31. The endpoint shall have the option to connect to the meter register without tools or wire splicing.
32. The endpoint shall be capable of removal without the removal of the meter and vice versa.
33. The endpoint shall be capable of conforming to three-wire installation.
34. The endpoint firmware shall be capable of wireless updates via handheld device.
35. Updated endpoint firmware images shall be available as they are released.
36. The endpoint shall be warranted to cover hourly data logging.

## 2.04 MOBILE DATA COLLECTOR

The mobile data collector shall meet the following requirements:

1. The mobile data collector shall be compact and portable.
2. Transmission power of the mobile data collector shall be 7 watts.
3. Receiver sensitivity of the mobile data collector shall be -119 dBm.
4. The mobile data collector shall be adaptable to 12-volt DC power.
5. The mobile data collector shall be paired with a laptop computer with route reading software.
6. The mobile data collector shall be set up in within minutes.
7. The mobile data collector shall be safely mounted within a vehicle.
8. The mobile data collector shall offer extremely long-range, rapid, and efficient data collection.
9. The mobile data collector shall be equipped with a magnetic RF antenna and GPS antenna.
10. Operators shall have the ability to obtain the route files and upload reading data wirelessly on the laptop from the utility network.
11. The mobile data collector shall be capable of processing multiple reads simultaneously while traveling at the posted speed limit.
12. The mobile data collector shall carry a standard one year warranty and have extended warranty options.

## 2.05 HANDHELD DEVICE

The handheld device shall meet the following requirements:

1. The handheld device shall store a history of all installed endpoints with a time stamp and summary of all pertinent information.
2. The handheld device shall be available for primary or back-up meter reading.
3. The handheld device shall connect to an endpoint communication device via Bluetooth.
4. The reading process with the handheld device shall be automatic, hands-free, and continual unless it is halted by the operator.
5. A list of meters to be collected shall be displayed on the handheld device.
6. Meters shall be removed from the list on the handheld device once collected.
7. The handheld device software shall be simple and intuitive.
8. The handheld device shall have endpoint audit capability.
9. The handheld device software shall allow for the entry of messages and service repair codes.
10. The handheld device shall have options for GPS receiver, barcode scanner, and digital camera.

11. The handheld device software shall be able to be integrated with Work Order Management software.
12. The handheld device shall carry a standard two year warranty.
13. The handheld device shall be housed in weather-resistant, high impact, UV-stabilized plastic.
14. The handheld device shall have a transfective (TFT) LCD screen that appears brighter in direct sunlight and have the ability manually adjust brightness as well.
15. The handheld device shall include a backlight feature for areas with insufficient lighting.
16. The handheld device shall weigh no more than 33 ounces.
17. The handheld device shall include alpha and numeric keys that can operated while wearing gloves.
18. The handheld device shall feature at least a 1 GHz microprocessor.
19. The handheld device shall feature an operating memory of 512 MB SDRAM.
20. The handheld device shall feature 8 GB of data storage memory.
21. The handheld device shall feature Lithium ion batteries that are field-replaceable.
22. The handheld device shall maintain functionality for up to 20 hours.
23. The handheld device shall operate from -22°F to 140°F (-30°C to 60°C).
24. The handheld device shall be tested to MIL-STD 810G and IP68 for waterproof, dustproof, and shockproof (drop testing) standards.

## **2.06 AMR SOFTWARE**

The AMR Software shall meet the following requirements:

1. The AMR Software shall comply with prevailing industry standards and should run on a Windows-compatible computer.
2. The AMR Software shall exist as a PC-based application.
3. The AMR Software should interface with Sensus file layout format to interface to the utility's CIS for meter reading.
4. The AMR Software shall support single and dual register meter information.
5. The AMR Software shall be able to export data to Microsoft Excel and Adobe PDF formats.
6. The AMR Software shall allow for data entry and editing by users.
7. The AMR Software shall be secured via Windows password protection.
8. The meter reading software shall be map-based, intuitive, and easy-to-use.
9. The meter reading software shall be fully automated to collect all data sent from endpoints and pair it with the correct account.
10. The meter reading software shall display the location of all meters, read and unread meters, alarms, and other conditions within the meter route on the map.
11. The meter reading software shall navigate the driver along the route.
12. The meter reading software shall display the location of the vehicle on the map and move the map according to the location of the vehicle.

13. The meter reading software shall detect and report mismatches between the endpoint ID and register ID.
14. The meter reading software shall detect and report mismatches between ports of the dual-port endpoint.
15. The meter reading software shall have audible tones as well as unique icons for alerts and alarms.
16. The meter reading software shall have configurable map layers.
17. The meter reading software shall obtain a time stamp when the reading is received via the mobile data collector.
18. The meter reading software shall process new endpoints/meters/accounts found during the meter reading process.
19. The meter reading software shall classify new meters as non-route meters and include all information in reports.
20. The meter reading software shall have the capability to accept manual readings and/or account notes.
21. The meter reading software shall allow an unlimited number of pre-defined or free-form alphanumeric text notes.
22. The meter reading software shall allow the meter reader to enter a manual read multiple times until correct.
23. The meter reading software shall have the ability to search unread meters, alarmed meters, read meters, meter addresses, meter numbers, and endpoint numbers.
24. The meter reading software shall have the ability to enter answers to survey questions.
25. The meter reading software shall validate meter readings for reasonableness, such as high or low readings.
26. The meter reading software shall handle potential meter rollovers.
27. The meter reading software shall provide route data back-up capabilities.
28. The host software shall be provided by the AMR provider.
29. The host software shall interface with the utility's CIS.
30. The host software shall have licenses provided and maintained by the AMR provider for the duration of the contract.
31. The host software shall convert meter read information into a flat file.
32. The host software shall be expandable and adaptable.
33. Flat files shall easily transfer from the CIS to the host software to the meter reading software and vice versa.
34. The host software shall have the ability to load multiple routes for different areas.
35. The Host Software shall provide standard reporting to include the following information:
  - a. Account List
  - b. Alarm Summary
  - c. AMR ID/Meter ID Mismatch
  - d. AMR Master Route

- e. Consumption
  - f. Cumulative Summary
  - g. Electric Peak Demand Reset
  - h. Electric Remote Actions
  - i. FlexNet Installation (*Handheld Only*)
  - j. High/Low Exception
  - k. Information Changed (*Handheld Only*)
  - l. Location Change
  - m. Manual Read Exception
  - n. Marked Location
  - o. Master Route
  - p. Meter Change Out (*Handheld Only*)
  - q. Multiple Read Exception
  - r. Multiplier Mismatch
  - s. Endpoint Status
  - t. Endpoint Worksheet
  - u. Non-Read Exception
  - v. Non-Route Exception
  - w. Note Master
  - x. Port Invalidation
  - y. Programmed endpoints (*Vehicle Only*)
  - z. Question
  - aa. Register Malfunction
  - bb. Register Mismatch
  - cc. Register Text Mismatch
  - dd. Route Comparison
  - ee. Route Exceptions
  - ff. Route Note
  - gg. Route Statistical Summary
  - hh. Route Title Page
  - ii. Units of Measurement Mismatch
  - jj. Work Performed (*Handheld Only*)
  - kk. Zero Consumption
36. The host software shall have the ability to interface to system back-up solution.
37. The host software shall provide route level back-up capabilities.
38. The AMR provider shall include menus, navigators, data elements, and major screen shots of the host software.
39. The host software shall be able to create custom reports.
40. The AMR provider shall provide software documentation including system overview, flow charts, file descriptions and layouts, descriptions of program function and logic,

back-up and recovery procedures, screen layouts, data entry procedures, report descriptions, user options descriptions, and error message descriptions.

## **2.07 RADIO LICENSES**

The RF modulation used by the Endpoints shall be narrow band spectrum. The AMR provider shall maintain an extensive portfolio of primary-use, FCC licensed frequencies and perform all license maintenance with the FCC for the life of the contract. There shall be no delay, uncertainty or hidden costs in acquiring required spectrum. The AMR provider shall name the utility as sub-licensee with the FCC for the life of the contract. FCC licenses shall be renewable for the duration of the contract.

## **2.08 MIGRATABILITY**

The utility shall be able to use the same infrastructure to migrate from walk-by/drive-by to AMI systems to address regions based on technology and deployment timelines. Once migrated to AMI, the system shall have the ability to use AMR drive-by data collection as backup to the AMI system.

## **2.09 TRAINING**

The AMR provider shall provide comprehensive training for the complete AMR system. Training shall include the following:

1. Training shall include introductory training and role-based training.
2. The AMR provider shall provide full system documentation and access to the AMR provider's education website.
3. The AMR provider shall provide follow-up training as necessary.
4. Training shall be provided at utility's office(s).
5. Training shall cover the following topics:
  - a. Introduction to AMR
  - b. Meter reading functions in the host software
  - c. Supplemental host software functions and troubleshooting
  - d. Handheld operations
  - e. Mobile data collector operation
  - f. Meter reading functions in the meter reading software
6. The AMR provider shall provide the following training aids:
  - a. PowerPoint presentations.
  - b. Interactive student simulation software which runs on customer computers.
  - c. Software and technical manuals.
7. The AMR provider shall provide trained and experienced instructors.
8. The AMR provider shall provide evaluation forms for each training session.

## **2.10 SUPPORT AND MAINTENANCE**

The AMR provider shall provide the following support for the first full year of service starting from the substantial completion:

- a. 8 am- 8pm EST phone support
- b. All software licenses and updates to the AMR system
- c. Equipment loaner program
- d. Remote diagnostics via utility provide VPN connection
- e. On-site troubleshooting as needed

END OF SECTION

**APPENDIX A**  
**PROPERTY OWNER RELEASE**



# RELEASE

I/We, \_\_\_\_\_, in consideration of work  
(Printed Name of Owner)  
performed to date on the \_\_\_\_\_  
(Name of Project)  
including backfilling, grading, disposal of excavated and waste material, seeding and mulching,  
etc., hereby release \_\_\_\_\_ and its  
(Name of Project Owner)  
contractor \_\_\_\_\_ from claims  
(Name of Contractor)  
arising from the construction process. I/We reserve the right to require the contractor, noted  
above, through the project owner, to return during the warranty period, should portions of the  
disturbed areas fail to achieve adequate grass cover or other items constructed fail to meet  
normal expectations. Any claim shall be reviewed by the project owner or representative thereof  
to determine the legitimacy of the claim.

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(Location: Street Address, City, State and Contact Number)

Signed this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_.

X \_\_\_\_\_

Witness: \_\_\_\_\_

**APPENDIX B**  
**CERTIFICATE OF EXEMPTION**

Important—Certificate not valid unless completed in full.



**CERTIFICATE OF EXEMPTION  
FOR BUILDING MATERIALS, FIXTURES AND SUPPLIES  
PURCHASED BY A CONSTRUCTION CONTRACTOR FOR  
A SEWER OR WATER PROJECT WITH A  
GOVERNMENTAL AGENCY**

In accordance with KRS 139.480(34), this certificate may be executed only for those purchases (*on or after 01/01/2023*) of building materials, fixtures and supplies that will be permanently incorporated into a structure or improvement to real property, or will be completely consumed, in fulfilling a construction contract with a governmental agency for the purpose of furnishing water or sewer services to the general public. The building materials, fixtures and supplies purchased must also be exempt from the sales and use tax if purchased directly by the governmental agency. This certificate must be executed jointly by the governmental agency and the construction contractor who is under contract with the governmental agency and purchases the property to fulfill the terms of the construction contract.

THE UNDERSIGNED HEREBY CERTIFIES THAT THE PROPERTY TO BE PURCHASED FROM:

\_\_\_\_\_  
Vendor Name and Address

will be permanently incorporated into a structure or improvement to real property, or will be completely consumed, in fulfilling a construction contract with a governmental agency for the purpose of furnishing water or sewer services to the general public.

Type and description of property to be purchased:

Building Materials: \_\_\_\_\_

Fixtures: \_\_\_\_\_

Supplies: \_\_\_\_\_

Project Period of Construction Contract: Start Date \_\_\_\_\_ End Date \_\_\_\_\_

**This jointly executed certificate of exemption, shall be valid only for purchases made for the project period of the construction contract indicated on the certificate at the time of purchase. A construction contractor shall jointly execute a new certificate with a government agency for additional purchases of building materials, fixtures and supplies required for the same project after the initial expiration date or for additional projects.**

I, the purchaser, understand that if the property described above is used in a nonexempt manner, I am liable for the payment of sales tax as provided in KRS 139.270, as if I were the retailer making a retail sale of the property at the time of such use and the cost to me shall be deemed the gross receipts from such retail sale. I will immediately remit to the Department of Revenue, Frankfort, Kentucky 40620, the required tax measured by the purchase price of the property. I also understand that the department shall hold the purchaser liable for the remittance of the tax and may apply any penalties as provided in KRS 139.990.

Under penalties of perjury, I swear or affirm that the information on this certificate is true and correct as to every material matter.

\_\_\_\_\_  
Governmental Agency

\_\_\_\_\_  
Exemption Number

\_\_\_\_\_  
Governmental Agency Authorized Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Construction Contractor Name (Print)

\_\_\_\_\_  
FEIN

\_\_\_\_\_  
Construction Contractor Authorized Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Sub-Contractor Name (Print)

\_\_\_\_\_  
FEIN

\_\_\_\_\_  
Sub-Contractor Authorized Signature

\_\_\_\_\_  
Date

# **EXHIBIT 14**

## Jeff Reynolds

---

**From:** Humphries, Terry (EEC) <Terry.Humphries@ky.gov>  
**Sent:** Tuesday, January 24, 2023 8:21 AM  
**To:** Jeff Reynolds  
**Subject:** RE: DOW Approval for Cleaner Water Program

Jeff,  
None of the items you described below would typically require a construction approval from the Division of Water. Please let me know if there is anything else I can assist with. Thank you.

**Terry Humphries, P.E.**  
Supervisor, Engineering Section  
Water Infrastructure Branch  
KY Division of Water  
300 Sower Blvd, 3<sup>rd</sup> Floor  
Frankfort, KY 40601  
(502)782-6983

---

**From:** Jeff Reynolds <jdreynolds@hmbpe.com>  
**Sent:** Monday, January 23, 2023 4:36 PM  
**To:** Humphries, Terry (EEC) <Terry.Humphries@ky.gov>  
**Cc:** Jeff Reynolds <jdreynolds@hmbpe.com>  
**Subject:** DOW Approval for Cleaner Water Program

Terry

As I am sure you are aware, DOW approval (Exhibit 8) is required for the Cleaner Water Program. I have several projects that would not typically require DOW approval, but KIA has requested a letter stating that DOW approval is not required for these types of projects. Below is a list of the projects:

- Farmdale Sanitation District proposes to purchase a utility truck and water meters.
- Western Fleming Water District proposes to repaint a water storage tank.
- Greater Fleming County Regional Water Commission proposes to repaint a water storage tank.
- Nebo Water District proposes to purchase meters and upgrade its SCADA System.
- Western Lewis-Rectorville Water District proposes to replace service line and meter boxes.

If this email should go to someone else at DOW, please let me know.

Thanks

Jeff Reynolds, P.E.

HMB Professional Engineers, Inc.  
3 HMB Circle  
Frankfort, Kentucky 40601  
(502) 695-9800

# **EXHIBIT 15**







# **EXHIBIT 16**

**LEGAL DESCRIPTION OF A 2,953 SQ. FT. TRACT OF LAND FOR A  
SOUTHWEST WOODFORD WATER DISTRICT PUMP STATION  
JOSEPHINE H. BARROWS ESTATE PROPERTY  
KENTUCKY HIGHWAY 33 (TROY PIKE)  
VERSAILLES, WOODFORD COUNTY, KENTUCKY 40383**

That tract of land lying south of Versailles in Woodford County, Kentucky, east of KY Highway 33 (Troy Pike) and north of Dry Ridge Road (relocated), said tract being a part of the Josephine H. Barrows Estate property (DB 60, PG 170 Tract II), and said tract being more fully described as follows:

“Point of Commencement (P.O.C.) at a spike with id washer #3432 set in the north right-of-way of Old Dry Ridge Road relocated and east right-of-way of KY Hwy 33. Said point being at station 50+74.00 from the intersection of the centerline of KY HWY 33 and Old Dry Ridge relocated and 50.42’ from the centerline of Old Dry Ridge Road relocated. Thence N 09° 36’ 01” W 84.27 feet to steel pin set in the east right-of-way line of KY Hwy 33 and Josephine H. Barrows Estate Property, said point being the true Point Of Beginning (POB).

Thence from said point of beginning and with the east right-of-way of KY Hwy 33 and Barrows N 09° 36’ 01” W 2.96 feet to a steel pin set, thence  
N 00° 27’ 35” E 57.08 feet to a steel pin set, thence leaving the east right-of-way of KY Hwy 33 and with a line through the Josephine H. Barrows Estate property for five calls;

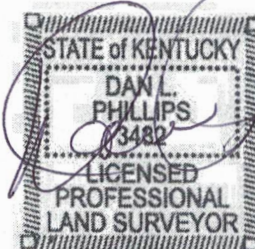
- (1) S 89° 32’ 25” E 23.45 feet to a steel pin set, thence
- (2) S 68° 34’ 35” E 25.00 feet to a steel pin found (ID #1304), thence
- (3) S 68° 34’ 35” E 5.35 feet to a steel pin set, thence
- (4) S 00° 27’ 35” E 49.14 feet to a steel pin set, thence
- (5) N 89° 32’ 25” W 51.28 feet to the point of beginning and containing 2,953 square feet and subject to any and all rights-of-way, easements or restrictions whether of record or not.”

This legal description is based on a retracement urban survey performed by Dan Phillips, LS #3432 in January 2023, and complies with 201 KAR 18:150. The bearing and coordinates shown are based on Kentucky state plane grid north, Kentucky state plane north zone, North America datum of 1983 (NAD 83), particularly, the bearings and coordinates are based on a GNSS survey utilizing a Trimble R12i and R8s GNSS receivers and the KYTC VRS system. “I do hereby certify that the survey shown hereon was performed under my direct supervision by the method of random traverse with an unadjusted field closure of 1:91,127 and has not been adjusted. This is an urban class survey and the basis of bearing is grid north. Steel pins set are 1/2” diameter by 18” long re-bar with ID cap #3432 and mag nails set are 1/4” diameter by 2” long with 1-1/2” diameter ID washer #3432.

Barrows-SWWD.doc

Aug. 2, 2023

Dan Phillips  
1138 Bear Creek Rd.  
Lawrenceburg, KY 40342



# **EXHIBIT 17**

**BASIS OF BEARING**

THE BEARING AND COORDINATES SHOWN ARE BASED ON KENTUCKY STATE PLANE GRID NORTH, KENTUCKY STATE PLANE NORTH ZONE, NORTH AMERICA DATUM OF 1983 (NAD 83). PARTICULARLY, THE BEARINGS AND COORDINATES ARE BASED ON A GNSS SURVEY UTILIZING A TRIMBLE R12i AND R8s GNSS RECEIVERS AND THE KYTC VRS SYSTEM.

**SURVEYORS CERTIFICATE**

I DO HEREBY CERTIFY THAT THE SURVEY SHOWN HEREON WAS PERFORMED UNDER MY DIRECT SUPERVISION BY THE METHOD OF RANDOM TRAVERSE WITH AN UNADJUSTED FIELD CLOSURE OF 1:91,127 AND HAS NOT BEEN ADJUSTED. THIS IS AN URBAN CLASS SURVEY AND THE BASIS FOR BEARING IS GRID NORTH. STEEL PINS SET ARE 1/2" IN DIAMETER BY 18" LONG WITH ID CAP LS #3432,

*Dan Phillips* 8-12-2023  
 DAN PHILLIPS LS # 3432 DATE

**OWNER**

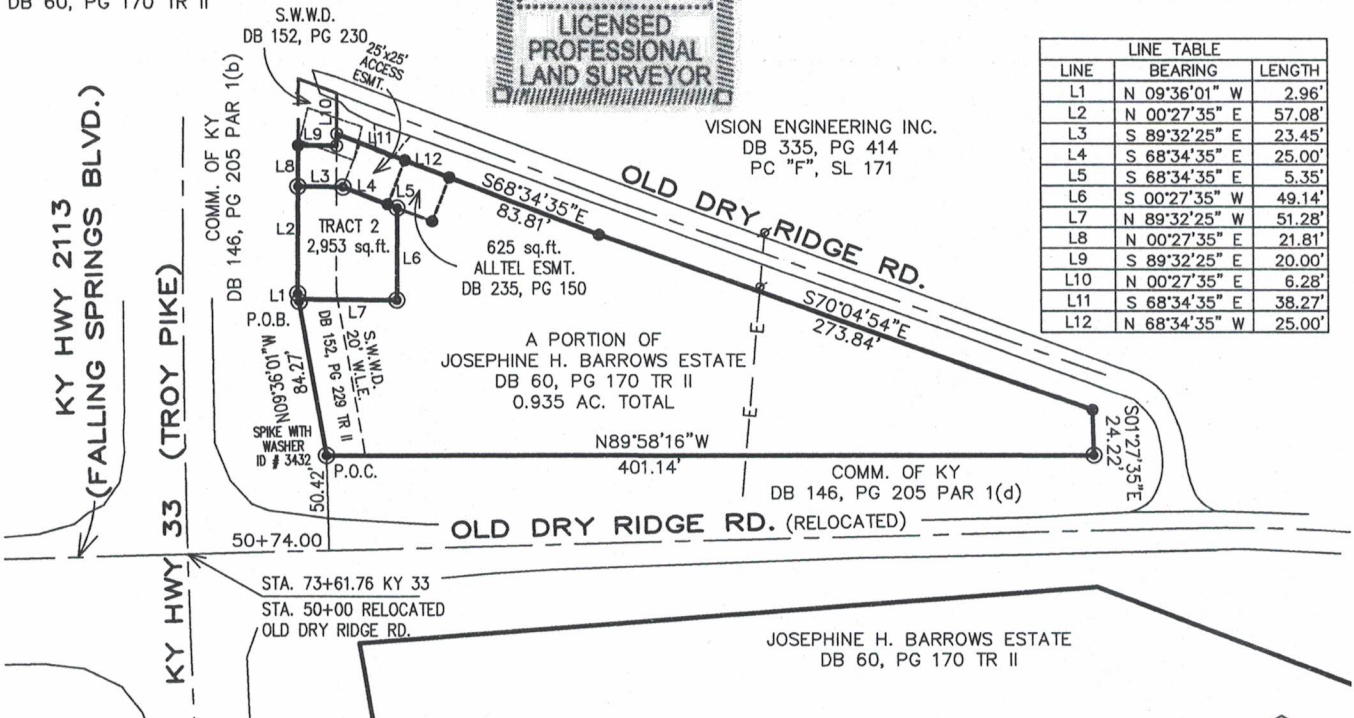
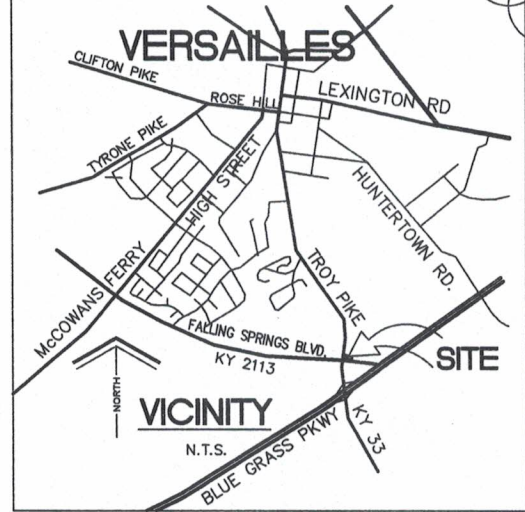
JOSAPHINE BARROWS ESTATE  
 152 STOUT AVE.  
 VERSAILLES, KY 40383

**SOURCE**

DB 60, PG 170 TR II



VISION ENGINEERING INC.  
 DB 335, PG 414  
 PC "F", SL 171



LINE	BEARING	LENGTH
L1	N 09°36'01" W	2.96'
L2	N 00°27'35" E	57.08'
L3	S 89°32'25" E	23.45'
L4	S 68°34'35" E	25.00'
L5	S 68°34'35" E	5.35'
L6	S 00°27'35" W	49.14'
L7	N 89°32'25" W	51.28'
L8	N 00°27'35" E	21.81'
L9	S 89°32'25" E	20.00'
L10	N 00°27'35" E	6.28'
L11	S 68°34'35" E	38.27'
L12	N 68°34'35" W	25.00'

**NOTES**

- 1.) THIS SURVEY IS SUBJECT TO ANY RIGHT-OF-WAYS OR EASEMENTS, PUBLIC OR PRIVATE WHETHER OF RECORD OR NOT, AND IS SUBJECT TO LOCAL CITY AND COUNTY ZONING ORDINANCES.
- 2.) THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF A TITLE REPORT.
- 3.) THIS SURVEYOR IS NOT RESPONSIBLE FOR ANY INACCURATE INDEXING OF RECORDS THAT THE COUNTY CLERK OR THE PROPERTY VALUATION OFFICE MAY HAVE MADE.
- 4.) THIS SURVEY COMPLIES WITH 201 KAR 18:150.

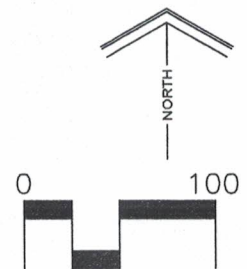
**PURPOSE**

THE PURPOSE OF THIS PLAT OF SURVEY IS TO CREATE TRACT 2 FOR A SOUTH WOODFORD WATER DISTRICT PUMP STATION.

**LEGEND**

- 1/2" BY 18" STEEL REBAR SET WITH ID CAP # 3432
- 3/4" BY 18" STEEL REBAR FOUND WITH ID CAP #1304

DATE: AUG. 2, 2023  
 SCALE: 1"=100'



**DPS**  
**DAN PHILLIPS SURVEYING**  
 1138 BEAR CREEK RD.  
 LAWRENCEBURG, KY 40342  
 PHONE - 502-859-5534  
 dpslandsurveying@gmail.com

FILE: BARROWS-SWWD.DWG

PLAT OF SURVEY OF A PORTION OF THE  
**JOSEPHINE H. BARROWS**  
**ESTATE PROPERTY**  
 KY 33 (TROY PIKE) and OLD DRY RIDGE ROAD  
 VERSAILLES, WOODFORD CO., KY

SURVEY FOR: SOUTH WOODFORD WATER DISTRICT  
 117 CROSSFIELD DR.  
 VERSAILLES, KY 40383

# **EXHIBIT 18**

**DOCUMENT FILED SEPARATELY**

# **EXHIBIT 19**

SYSTEM IMPROVEMENTS PROJECT  
SOUTH WOODFORD WATER DISTRICT  
WOODFORD COUNTY, KENTUCKY

CONTRACT I - KY 33 PUMP STATION REPLACEMENT



NOVEMBER 2023

HMB #4347.01



3 HMB Circle, US 460  
Frankfort, KY 40601  
(502) 695-9800





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- Appendix A – Property Owner Release
- Appendix B – Certificate of Exemption

ADVERTISEMENT FOR BIDS

SYSTEM IMPROVEMENTS PROJECT  
SOUTH WOODFORD WATER DISTRICT  
WOODFORD COUNTY, KENTUCKY

NOVEMBER 2023

Sealed proposals for the following work will be received by the South Woodford Water District at 117D Crossfield Drive, Versailles, Kentucky until 9:00 a.m. (local time) December 13, 2023, for furnishing labor and materials and performing all work as set forth in this Advertisement for Bids, General Conditions, Specifications and/or Drawings prepared by HMB Professional Engineers, Inc., 3 HMB Circle, US 460, Frankfort, Kentucky 40601.

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 upon is described as follows:

- Contract I – (KY 33 Pump Station Replacement) Furnish and installation of a prefabricated booster pump station, including site work, electrical, piping, demolition of existing pump station, SCADA System upgrade, etc.
- Contract II – (Automated Meter Reading System) Furnish, install and place into operation a complete Automated Meter Reading System, including approximately 1,765 AMR meters.

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

South Woodford Water District  
117D Crossfield Drive  
Versailles, KY 40383

HMB Professional Engineers, Inc.  
3 HMB Circle, US 460  
Frankfort, KY 40601

Printed or electric copies of the Bidding Documents may be obtained from LYNN IMAGING, 328 Old Vine Street, Lexington, Kentucky 40507, upon payment as follows:

Contract I (KY 33 Pump Station Replacement) South Woodford Water District	\$300 per set (Hard Copy); \$200 per set (Electronic Copy)
Contract II (Automated Meter Reading System) South Woodford Water District	\$250 per set (Hard Copy); \$200 per set (Electronic Copy)

The phone number for LYNN IMAGING is (859) 226-5850. Note: Additional shipping charges may apply.

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

"Sealed proposal for System Improvements Project – South Woodford Water District  
Designate either Contract I or Contract II

Not to be opened until 9:00 a.m.(local time), December 13, 2023  
(time and date of bid opening)

"The following addenda have been received and considered in the enclosed proposal:"

Addendum No. \_\_\_                      Addendum No. \_\_\_                      Addendum No.

Time allowed for completion of Contract I (KY 33 Pump Station Replacement) is 60 calendar days.  
Time allowed for completion of Contract II (AMR System) is 270 calendar days.

If forwarded by mail, the sealed envelope containing the proposal must be enclosed in another envelope and mailed to the South Woodford Water District, 117D Crossfield Drive, Versailles, KY 40383 allowing sufficient time for such mailing to reach this address prior to the scheduled closing time for the receipt of proposals.

Bids shall be accompanied by a certified check or bid bond payable to the South Woodford Water District in an amount not less than five percent (5%) of the base bid. No bidder may withdraw his bid for a period of ninety (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 will not be considered and will be returned unopened to the bidder.

The South Woodford Water District reserves the right to reject any and all bids and to waive formalities and any bid that is obviously unbalanced may be rejected.

Barry Drury  
Chairman

## INSTRUCTION TO BIDDERS

BIDS will be received by See Advertisement (herein called the "OWNER"), at See Advertisement until See Advertisement 20\_\_\_\_, and then at said office publicly opened and read aloud.

Each BID must be submitted in a sealed envelope, addressed to See Advertisement at \_\_\_\_\_. Each sealed envelope containing a BID must be plainly marked on the outside as BID for \_\_\_\_\_ and the envelope should bear on the outside the BIDDER'S name, address, and license number if applicable, and the name of the project for which the BID is submitted. If forwarded by mail, the sealed envelope containing the BID must be enclosed in another envelope addressed to the OWNER at \_\_\_\_\_ See Advertisement \_\_\_\_\_.

All BIDS must be made on the required BID form. All blank spaces for BID prices must be filled in, in ink or typewritten, and the BID form must be fully completed and executed when submitted. Only one copy of the BID form is required.

The OWNER may waive any informalities or minor defects or reject any and all BIDS. Any BID may be withdrawn prior to the above scheduled time for the opening of BIDS or authorized postponement thereof. Any BID received after the time and date specified shall not be considered. No BIDDER may withdraw a BID within 90 days after the actual date of the opening thereof. Should there be reasons why the contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the OWNER and the BIDDER.

BIDDERS must satisfy themselves of the accuracy of the estimated quantities in the BID Schedule by examination of the site and a review of the drawings and specifications including ADDENDA. After BIDS have been submitted, the BIDDER shall not assert that there was a misunderstanding concerning the quantities of WORK or of the nature of the WORK to be done.

The OWNER shall provide to BIDDERS prior to BIDDING, all information which is pertinent to, and delineates and describes, the land owned and rights-of-way acquired or to be acquired.

The CONTRACT DOCUMENTS contain the provisions required for the construction of the PROJECT. Information obtained from an officer, agent, or employee of the OWNER or any other person shall not affect the risks or obligations assumed by the CONTRACTOR or relieve the contractor from fulfilling any of the conditions of the contract.

Each BID must be accompanied by a BID bond payable to the OWNER for five percent (5%) of the total amount of the BID. As soon as the BID prices have been compared, the OWNER will return the BONDS of all except the three lowest responsible BIDDERS. When the Agreement is executed the bonds of the two remaining unsuccessful BIDDERS will be returned. The BID BOND of the successful BIDDER will be retained until the payment BOND and performance BOND have

been executed and approved, after which it will be returned. A certified check may be used in lieu of a BID BOND.

A performance BOND and a payment BOND each in the amount of 100 percent of the CONTRACT PRICE, with a corporate surety approved by the OWNER, will be required for the faithful performance of the contract. Performance BOND must be valid for one year beyond date of acceptance of the completed project.

Attorneys-in-fact who sign BID BONDS or payment BONDS and performance BONDS must file with each BOND a certified and effective dated copy of their power of attorney.

The party to whom the contract is awarded will be required to execute the Agreement and obtain the performance BOND and payment BOND within ten (10) calendar days from the date when NOTICE OF AWARD is delivered to the BIDDER. The NOTICE OF AWARD shall be accompanied by the necessary Agreement and BOND forms. In case of failure of the BIDDER to execute the Agreement, the OWNER may consider the BIDDER in default, in which case the BID BOND accompanying the proposal shall become the property of the OWNER.

The OWNER within ten (10) days of receipt of acceptable performance BOND, payment BOND and Agreement signed by the party to whom the Agreement was awarded shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the OWNER not execute the Agreement within such period, the BIDDER may by WRITTEN NOTICE withdraw the signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the OWNER.

The NOTICE TO PROCEED shall be issued within ten (10) days of the execution of the Agreement by the OWNER. Should there be reasons why the NOTICE TO PROCEED cannot be issued within such period, the time may be extended by mutual agreement between the OWNER AND CONTRACTOR. If the NOTICE TO PROCEED has not been issued within the ten (10) day period or within the period mutually agreed upon, the CONTRACTOR may terminate the Agreement without further liability on the part of either party.

The OWNER may make such investigations as deemed necessary to determine the ability of the BIDDER to perform the WORK, and the BIDDER shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any BID if the evidence submitted by, or investigation of, such BIDDER fails to satisfy the OWNER that such BIDDER is properly qualified to carry out the obligations of the Agreement and to complete the WORK contemplated therein.

A conditional or qualified BID will not be accepted.

Award will be made to the lowest, responsive, responsible BIDDER.

All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the PROJECT shall apply to the contract throughout.

Each BIDDER is responsible for inspecting the site and for reading and being thoroughly familiar with the CONTRACT DOCUMENTS. The failure or omission of any BIDDER to do any of the foregoing shall in no way relieve any BIDDER from any obligation in respect to its BID.

The low BIDDER shall supply the names and addresses of major material SUPPLIERS and SUBCONTRACTORS when required to do so by the OWNER.

The ENGINEER is HMB Professional Engineers. The ENGINEER'S address is 3 HMB Circle, US 460, Frankfort, KY 40601.



**BID FORM**

**CONTRACT I – KY 33 PUMP STATION REPLACEMENT**

**SYSTEM IMPROVEMENTS PROJECT**

**SOUTH WOODFORD WATER DISTRICT**

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**ARTICLE 1 – BID RECIPIENT**

1.01 This Bid is submitted to:

**South Woodford Water District, 117 D Crossfield Drive, Versailles, KY 40383**

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 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.

E. 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.

- F. 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.
- G. 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.
- H. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- I. 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 following price(s):

**THE BIDDER SHALL BE AWARE THAT MATERIALS PERMANENTLY INCORPORATED INTO THIS PROJECT ARE EXEMPT FROM SALES AND USE TAX.**

The following Base Bid items include a general description of each bid item. For a detailed description of work to be included in each bid item see the Measurement and Payment Section; Section 01150 of the specifications.

**BASE BID**

<u>Item No.</u>	<u>Item</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Total</u>
1	Demolition of the Existing Pump Station, as shown on the plans and described in the specifications	1	LS	\$	\$
2	Supervisory Control and Data Acquisition (SCADA) Control System Upgrade, including furnishing, installation, testing and placing into satisfactory operation	1	LS	\$	\$
3	Booster Pump Station, including but not limited to furnishing and installing pumps, piping, valves, controls, building, concrete, site work, access road, electric, fence, etc. (Complete in Place)	1	LS	\$	\$
<b>TOTAL BASE BID PRICE (Items 1 through 3)</b>					<b>\$</b>

(figures)

Dollars &

Cents

(WORDS)

Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor’s overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

**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.

~~{or}~~

~~6.01 Bidder agrees that the Work will be substantially complete on or before \_\_\_\_\_, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before \_\_\_\_\_.~~

~~{or}~~

~~6.01 Bidder agrees that the Work will be substantially complete within \_\_\_\_\_ calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within \_\_\_\_\_ calendar days after the date when the Contract Times commence to run.~~

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;

#### **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]* \_\_\_\_\_

Attest:  
*[Signature]* \_\_\_\_\_  
*[Printed name]* \_\_\_\_\_

Title: \_\_\_\_\_

Submittal Date: \_\_\_\_\_

Address for giving notices:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone Number: \_\_\_\_\_

Fax Number: \_\_\_\_\_

Contact Name and e-mail address: \_\_\_\_\_  
\_\_\_\_\_

## 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*): South Woodford Water District  
117D Crossfield Drive  
Versailles, KY 40383

### BID

Bid Due Date:

Description: Contract I – KY 33 Pump Station Replacement  
System Improvements Project

### 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

\_\_\_\_\_  
Bidder'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



*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.

**NOTICE OF AWARD**

Date of Issuance:

Owner: South Woodford Water District

Owner's Contract No.

Engineer: HMB Professional Engineers, Inc.

Engineer's Project No.: 4347.01

Project: System Improvements

Contract Name: Contract I – KY 33 Pump Station  
Replacement

Bidder:

Bidder's Address:

**TO BIDDER:**

You are notified that Owner has accepted your Bid dated \_\_\_\_\_ for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

Contract I (KY 33 Pump Station Replacement) – South Woodford Water District  
*[describe Work, alternates, or sections of Work awarded]*

The Contract Price of the awarded Contract is: \$ \_\_\_\_\_ *[note if subject to unit prices, or cost-plus]*

unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically. *[revise if multiple copies accompany the Notice of Award]*

a set of the Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner [ 4 ] counterparts of the Agreement, fully executed by Bidder.
2. Deliver with the executed Agreement(s) the Contract security *[e.g., performance and payment bonds]* and insurance documentation as specified in the Instructions to Bidders and General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any):

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

---

Owner: South Woodford Water District

Signature:

By: Barry Drury

Title: Chairman

Copy: Engineer

CONTRACT AGREEMENT

THIS AGREEMENT, made this \_\_\_\_\_ day of \_\_\_\_\_, 2023

by and between South Woodford Water District  
(Owner)

acting through its Chairman hereinafter called  
(Mayor, Utility Commission, Chairman)

the OWNER and \_\_\_\_\_ doing business as  
(Contractor)

\_\_\_\_\_ of the city of \_\_\_\_\_,  
(an individual) (partnership) (a corporation)

\_\_\_\_\_ County, State of \_\_\_\_\_ hereinafter called the CONTRACTOR.

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

The CONTRACTOR will commence and complete the construction of

Contract I – (KY 33 Pump Station Replacement) – South Woodford Water District

The CONTRACTOR will furnish all of the materials, supplies, tools, equipment, labor and other services necessary for the construction and completion of the project described herein.

The CONTRACTOR will commence work under this contract on or before the date to be specified by the Owner, in a written “Notice to Proceed” and will fully complete the project within 60 consecutive calendar days thereafter. The CONTRACTOR further agrees to pay as liquidated damages, the sum of \$ 1,000.00 for each consecutive calendar day that the work remains incomplete after the expiration date of this contract, as modified by Change Order.

The CONTRACTOR agrees to perform all of the WORK described in the CONTRACT DOCUMENTS for the sum of \$ \_\_\_\_\_, or as shown in the Bid Schedule.

The term “CONTRACT DOCUMENTS” means and includes the SPECIFICATIONS prepared or issued by HMB Professional Engineers, Inc.

The Advertisement for Bid, Information to Bidders, the signed copy of the Bid Schedule, the Bid Bond, the fully executed Performance Bond and Payment Bond, the General Conditions, Supplemental General Conditions, Specifications, the General Requirements, the Drawings and other Contract Documents are hereby referred to and by reference made a part of this CONTRACT as fully and completely as if the same were fully set forth herein and are mutually cooperative therewith.

The following ADDENDA are included as part of this Contract:

ADDENDUM NO. 1                      ADDENDUM NO. 2                      ADDENDUM NO. 3

DATE: \_\_\_\_\_                      DATE: \_\_\_\_\_                      DATE: \_\_\_\_\_

The OWNER shall make progress payments as the work is completed, in accordance with the appropriate Articles of the General Conditions.

Final payment shall be due thirty (30) days after completion and acceptance of the work.

Before issuance of final certificate, the Contractor shall submit evidence satisfactory to the Owner that all payrolls, material bills, and other indebtedness connected with the work have been paid.

If, after the work has been substantially completed, full completion thereof is materially delayed through no fault of the Contractor, and the Engineer so certifies, the Owner shall, upon certificate of the Engineer and without terminating the contract, make payment of the balance due for that portion of the work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in four (4) copies each of which shall be deemed an original on the date first above written.

This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

\_\_\_\_\_  
CONTRACTOR

ATTEST:

\_\_\_\_\_  
Title  
(SEAL)

By \_\_\_\_\_  
Title

South Woodford Water District  
OWNER

ATTEST:

\_\_\_\_\_  
Title

By \_\_\_\_\_  
Chairman

# PERFORMANCE BOND

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

CONTRACTOR (Name and Address):

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

OWNER (Name and Address):  
South Woodford Water District  
117D Crossfield Drive  
Versailles, KY 40383

**CONTRACT**

Date:

Amount: \$

Description (Name and Location): Contract I – KY 33 Pump Station Replacement – System Improvements Project  
South Woodford Water District

**BOND**

Bond Number:

Date (Not earlier than Contract Date):

Amount: \$

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

**CONTRACTOR AS PRINCIPAL**

Company:

Signature: \_\_\_\_\_ (Seal)

Name and Title:

**SURETY**

\_\_\_\_\_  
(Seal)

Surety's Name and Corporate Seal

By:

Signature and Title

(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

Attest:

Signature and Title

**CONTRACTOR AS PRINCIPAL**

Company:

Signature: \_\_\_\_\_ (Seal)

Name and Title:

**SURETY**

\_\_\_\_\_  
(Seal)

Surety's Name and Corporate Seal

By:

Signature and Title

(Attach Power of Attorney)

Attest:

Signature and Title:

EJCDC No. C-610 (2002 Edition)

Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, and the American Institute of Architects.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.
2. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 3.1.
3. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
  - 3.1. Owner has notified Contractor and Surety, at the addresses described in Paragraph 10 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
  - 3.2. Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 3.1; and
  - 3.3. Owner has agreed to pay the Balance of the Contract Price to:
    1. Surety in accordance with the terms of the Contract;
    2. Another contractor selected pursuant to Paragraph 4.3 to perform the Contract.
4. When Owner has satisfied the conditions of Paragraph 3, Surety shall promptly and at Surety's expense take one of the following actions:
  - 4.1. Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
  - 4.2. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
  - 4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and Contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
  - 4.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:
    1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
    2. Deny liability in whole or in part and notify Owner citing reasons therefor.
5. If Surety does not proceed as provided in Paragraph 4 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 4.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.
6. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To a limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:
  - 6.1. The responsibilities of Contractor for correction of defective Work and completion of the Contract;
  - 6.2. Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions or failure to act of Surety under Paragraph 4; and
  - 6.3. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.
7. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the 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 Owner or its heirs, executors, administrators, or successors.
8. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.
9. 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 Contractor Default or within two years after Contractor ceased working or within two years after 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 period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
10. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.
11. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
12. Definitions.
  - 12.1. Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.
  - 12.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
  - 12.3. Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.
  - 12.4. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

FOR INFORMATION ONLY – Name, Address and Telephone  
Surety Agency or Broker  
Owner's Representative (engineer or other party)

PAYMENT BOND

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

CONTRACTOR (Name and Address):

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

OWNER (Name and Address):
South Woodford Water District
117D Crossfield Drive
Versailles, KY 40383

CONTRACT

Date:
Amount: \$
Description (Name and Location): Contract I - KY 33 Pump Station Replacement - System Improvements Project
South Woodford Water District

BOND

Bond Number:
Date (Not earlier than Contract Date):
Amount: \$
Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Payment Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Company:

Signature: \_\_\_\_\_ (Seal)
Name and Title:

\_\_\_\_\_, (Seal)
Surety's Name and Corporate Seal

By: \_\_\_\_\_
Signature and Title
(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

Attest: \_\_\_\_\_
Signature and Title

CONTRACTOR AS PRINCIPAL

SURETY

Company:

Signature: \_\_\_\_\_ (Seal)
Name and Title:

\_\_\_\_\_, (Seal)
Surety's Name and Corporate Seal

By: \_\_\_\_\_
Signature and Title
(Attach Power of Attorney)

Attest: \_\_\_\_\_
Signature and Title:

EJCDC No. C-615 (2002 Edition)
Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, the American Institute of Architects, the American Subcontractors Association, and the Associated Specialty Contractors.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to Owner, this obligation shall be null and void if Contractor:
  - 2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and
  - 2.2. Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
4. Surety shall have no obligation to Claimants under this Bond until:
  - 4.1. Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the addresses described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
  - 4.2. Claimants who do not have a direct contract with Contractor:
    1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
    2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
    3. Not having been paid within the above 30 days, have sent a written notice to Surety and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:
  - 6.1. Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
  - 6.2. Pay or arrange for payment of any undisputed amounts.
7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.
9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.
11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, 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.
12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.
14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. DEFINITIONS

- 15.1. Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and 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.
- 15.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 15.3. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

**FOR INFORMATION ONLY – Name, Address and Telephone  
Surety Agency or Broker:  
Owner's Representative (engineer or other party):**



**NOTICE TO PROCEED**

---

Owner: South Woodford Water District	Owner's Contract No.:
Contractor:	Contractor's Project No.:
Engineer: HMB Professional Engineers, Inc.	Engineer's Project No.: 4347.01
Project: System Improvements	Contract Name: Contract I (KY 33 Pump Station Replacement)
	Effective Date of Contract:

---

**TO CONTRACTOR:**

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on [REDACTED], 2023]. [see Paragraph 4.01 of the General Conditions]

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. In accordance with the Agreement, [the date of Substantial Completion is \_\_\_\_\_, and the date of readiness for final payment is \_\_\_\_\_] **or** [the number of days to achieve Substantial Completion is \_\_\_\_\_, and the number of days to achieve readiness for final payment is \_\_\_\_\_].

Before starting any Work at the Site, Contractor must comply with the following:  
[Note any access limitations, security procedures, or other restrictions]

---

Owner: South Woodford Water District

Signature:

By: Barry Drury

Title: Chairman

Date Issued:

Copy: Engineer

## 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. §§5501 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.H 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 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.
    - 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 11.01.C.2.a and 11.01.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 special 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 CONDITONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2013 Edition). All provisions that are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

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### ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

#### *SC-1.01 Defined Terms*

**SC 1.01.A.8** Add the following language at the end of last sentence of Paragraph 1.01A.8:

The Change Order form to be used on this Project is EJCDE C-941. Agency approval is required before Change Orders are effective.

**SC 1.01.A.48** Add the following language at the end of the last sentence of Paragraph 1.01.A.48:

A work Change Directive cannot change Contract Price or Contract Time without a subsequent Change Order.

**SC 1.01.A.49** Add the following new Paragraph after Paragraph 1.01A.48:

**Abnormal Weather** – Conditions of extreme or unusual weather for a given region, elevation, or season as determined by Engineer. Extreme or unusual weather that is typical for a given region, elevation, or season should not be considered Abnormal Weather Conditions.

### ARTICLE 2 – PRELIMINARY MATTERS

#### *SC-2.02 Copies of Documents*

**SC 2.02.A** Amend the first sentence of Paragraph 2.02.A. To read as follows:

Owner shall furnish to Contractor two copies of the Contract Documents (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF).

**SC 2.06.B** Delete Paragraph 2.06.B and replace it with the term *[Deleted]*/

### ARTICLE 4 - COMMENCEMENT AND PROGRESS OF THE WORK

**SC 4.01.A** Amend the last sentence of Paragraph 4.01.A by striking out the following words:

In no event with 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.



SC 4.05.C.2 Amend Paragraph 4.05.C.2 by striking out the following text: “abnormal weather conditions;” and inserting the following text:

Abnormal Weather Conditions;

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

*SC-5.03 Subsurface and Physical Conditions*

SC 5.03 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 5.06 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 Liability Insurance

SC 6.03 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	\$ <u>NA</u>
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Bodily injury by disease, aggregate	\$ <u>NA</u>
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Employer’s Liability:

Bodily injury, each accident	\$ <u>2,000,000</u>
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Bodily injury by disease, each employee	\$ <u>2,000,000</u>
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Bodily injury/disease aggregate	\$ <u>2,000,000</u>
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For work performed in monopolistic states, stop-gap liability coverage shall be endorsed to either the worker’s compensation or commercial general liability policy with a minimum limit of:	\$ <u>NA</u>
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- |  |                  |
|--|------------------|
| <b>Foreign voluntary worker compensation</b> | <u>Statutory</u> |
|--|------------------|
2. **Contractor’s Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:**
- |   |                     |
|---|---------------------|
| General Aggregate                                   | \$ <u>2,000,000</u> |
| Products - Completed Operations Aggregate           | \$ <u>1,000,000</u> |
| Personal and Advertising Injury                     | \$ <u>1,000,000</u> |
| Each Occurrence (Bodily Injury and Property Damage) | \$ <u>1,000,000</u> |
3. **Automobile Liability under Paragraph 6.03.D. of the General Conditions:**
- Bodily Injury:**
- |               |                     |
|---------------|---------------------|
| Each person   | \$ <u>1,000,000</u> |
| Each accident | \$ <u>1,000,000</u> |
- Property Damage:**
- |               |                     |
|---------------|---------------------|
| Each accident | \$ <u>1,000,000</u> |
|---------------|---------------------|
- [or]*
- |                          |                     |
|--------------------------|---------------------|
| Combined Single Limit of | \$ <u>1,000,000</u> |
|--------------------------|---------------------|
4. **Excess or Umbrella Liability:**
- |                   |                     |
|-------------------|---------------------|
| Per Occurrence    | \$ <u>5,000,000</u> |
| General Aggregate | \$ <u>5,000,000</u> |
5. **Contractor’s Pollution Liability:**
- |                   |              |
|-------------------|--------------|
| Each Occurrence   | \$ <u>NA</u> |
| General Aggregate | \$ <u>NA</u> |
- 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:**

**7. Contractor’s Professional Liability:**

(Required when work performed by a Professional Engineer or Land Surveyor by Contractor or Sub-Contractor)

Each Claim	\$ <u>1,000,000</u>
Annual Aggregate	\$ <u>1,000,000</u>

*SC-6.05 Property Insurance*

**SC-6.05.A.1 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: None

**ARTICLE 7 – CONTRACTOR’S RESPONSIBILITIES**

*SC-7.02 Labor; Working Hours*

**SC-7.02.B. Add the following new subparagraphs immediately after Paragraph 7.02.B:**

- B. In the absence of any Laws or Regulations to the contrary, Contractor may perform the Work on holidays, during any or all hours of the day, and on any or all days of the week, at Contractor's sole discretion.

**SC 7.04.A Amend the third sentence of Paragraph 7.04.A by striking out the following words:**

Unless the specifications or description contains or is followed by words reading that no like, equivalent, or ‘or-equal’ item is permitted.

**SC 7.04.A.1 Amend the last sentence of Paragraph a.3 by striking out “and;” and adding a period at the end of Paragraph a.3.**

**SC 7.04.A.1 Delete paragraph 7.04.A.1.a.4 in its entirety.**

**SC 7.06.A Amend Paragraph 7.06.A by adding the following text to the end of the Paragraph:**

The Contractor shall not award work valued at more than fifty percent of the Contract Price to Subcontractor(s), without prior written approval of the Owner.

**SC 7.06.B Delete paragraph 7.06.B in its entirety.**

**SC 7.06.E Amend the second sentence of Paragraph 7.06.E by striking out “Owner may also require Contractor to retain specific replacements; provided, however, that”.**

**ARTICLE 8 – OTHER WORK AT THE SITE**

**ARTICLE 10 – ENGINEER’S STATUS DURING CONSTRUCTION**

*SC-10.03 Project Representative*

**SC-10.03 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 Start-ups:
- 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 start-ups.
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 11 – AMENDING THE CONTRACT DOCUMENTS: CHANGES IN THE WORK**

**SC 11.07.C Add the following new Paragraph after Paragraph 11.07.B:**

All Contract Change Orders must be concurred in by Agency before they are effective.

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

*SC-13.01 Cost of the Work*

**SC 13.01.B.5.c 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 as determined by KYTC Current Equipment Rates found by contacting Chris Sutton @ chris.sutton2@ky.gov. 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-13.02 Allowances*

**SC 13.02.C Delete Paragraph 13.02.C in its entirety.**

**ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD**

*SC-15.01 Progress Payments*

**SC 15.01.B Amend the second sentence of Paragraph 15.01.B.1 by striking out the following text:  
“a bill of sale, invoice, or other.”**

**SC 15.01.B.3 Add the following language at the end of paragraph 15.01.B.3:**

**No payment will be made that would deplete the retainage, place in escrow any funds that are required, or invest the retainage for the benefit of the Contractor.**

**SC 15.01.B.4 Add the following new Paragraph after Paragraph 15.01.B.3:**

**The Application for Payment form to be used on this Project is EJCDC C-620. The Agency must approve all Applications for Payment before payment is made.**

**SC15.01.D.1 Delete Paragraph 15.01.D.1 in its entirety and insert the following in its place:**

**The Application for Payment with Engineer’s recommendations will be presented to the Owner and Agency for consideration. If both the Owner and Agency find the**

Application for Payment acceptable, the recommended amount less any reduction under the provisions of Paragraph 15.01.E will be approved. The Owner will make payment to the Contractor within five days of receipt of payment from KYTC.

SC-15.02 Contractor's Warranty of Title

SC 15.02.A Amend Paragraph 15.02.A by striking out the following text: "no later than seven days after the time of payment by Owner" and insert "no later than the time of payment by Owner."

SC-15.03 *Substantial Completion*

SC 15.03.B 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.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

SC-17.02 Add the following new paragraph immediately after Paragraph 17.01.

SC-17.02 Arbitration

- A. All matters subject to final resolution under this Article will be decided by arbitration in accordance with the rules of *[insert name of selected arbitration agency]*, subject to the conditions and limitations of this paragraph. This agreement to arbitrate and any other agreement or consent to arbitrate entered into will be specifically enforceable under the prevailing law of any court having jurisdiction.
- B. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitrator or arbitration provider, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the specific time required in this Article, or if no specified time is applicable within a reasonable time after the matter in question has arisen, and in no event shall any such demand be made after the date when institution of legal or equitable proceedings based on such matter in question would be barred by the applicable statute of limitations. The demand for arbitration should include specific reference to Paragraph SC-17.02.D below.
- C. No arbitration arising out of or relating to the Contract shall include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer's consultants and the officers, directors, partners, agents, employees or consultants of any of them) who is not a party to this Contract unless:



1. the inclusion of such other individual or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration; and
  2. such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings.
- D. The award rendered by the arbitrator(s) shall be consistent with the agreement of the parties, in writing, and include a concise breakdown of the award, and a written explanation of the award specifically citing the Contract provisions deemed applicable and relied on in making the award.
- E. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the Laws and Regulations relating to vacating or modifying an arbitral award.
- F. The fees and expenses of the arbitrators and any arbitration service shall be shared equally by Owner and Contractor.

SPECIAL CONDITIONS

1. PROJECT FUNDING

CONTRACTORS bidding the project should be aware that funding is provided by the Kentucky Infrastructure Authority Cleaner Water Program.

2. UNCLASSIFIED EXCAVATION

All excavation is unclassified. No extra payment will be allowed for rock excavation of any kind. It is the CONTRACTOR's responsibility to make any additional investigations to determine depth, location or competency of rock within the project area.

3. CONFLICTING SECTIONS/STATEMENTS IN CONTRACT DOCUMENTS

a. General

It shall be noted that if any provisions in these Contract Documents is in conflict and/or is inconsistent with any other section or provisions, then the most stringent shall apply per the interpretation of the ENGINEER and/or OWNER.

b. Hold Period on Bids

All bids shall remain valid for a period of 90 days. Any reference to a lesser period of time is incorrect.

4. CONTRACTOR'S INSURANCE CERTIFICATE

The following wording for the cancellation clause on the insurance certificate is required:

"Should any of the above described policies be canceled before the expiration date thereof, the issuing company will mail 15 days written notice to the certificate holder named to the left."

5. FEDERAL/STATE/LOCAL REGULATIONS

The CONTRACTOR shall abide by all local and state laws or ordinances to the extent that such requirements do not conflict with federal laws or regulations. Compliance with any and all applicable laws and/or regulations is strictly the CONTRACTOR's responsibility.

6. SILTATION AND SOIL EROSION

The CONTRACTOR shall make every effort during construction to minimize siltation and soil erosion and comply with all local and state codes that pertain to this project. Any applicable permits shall be the CONTRACTOR's responsibility to obtain, at no additional cost to the OWNER.

7. ROUGH CLEAN UP

- a. Rough clean up shall be performed on a daily basis concurring with the daily rate of production for pay items, amounts and/or quantities listed in the schedule of values and/or Bid Schedule.
- b. The CONTRACTOR is to provide sufficient labor and equipment for clean up as to not impede production schedules.
- c. Rough clean up shall be defined as follows:
  1. All open ditches shall be backfilled on a daily basis.
  2. Debris (rocks, roots, timber, etc.) shall be removed from the job site on a daily basis. This material may be stockpiled with the consent of the OWNER and the ENGINEER in designated locations. Any such locations shall be arranged by the CONTRACTOR with the written consent of the property owner.
  3. Remaining backfill material (soil) shall be windrowed back on top of the ditch line, compacted and leveled giving consideration for settlement.
- d. At the direction of the ENGINEER, OWNER, or their appointed representatives, the CONTRACTOR shall readdress areas if identified as not being adequate in the initial rough clean up process.

8. QUANTITIES OF MATERIALS

The quantities of materials listed on the Bid Schedule are estimates only and are subject to changes in the field. The CONTRACTOR shall verify these quantities before ordering materials. In the event of an under run or over run of materials, the CONTRACTOR shall be responsible for any shipping and/or restocking fees.

9. SHOP DRAWING REVIEW

Throughout these Specifications, all reference to Shop Drawing review by the ENGINEER, should read fourteen (14) days, not 30 days or any other number of days more or less than 14.

10. CONSTRUCTION PERIOD – ADVERSE WEATHER DAYS

The CONTRACTOR is to note that there are adverse weather days included within the allotted construction time. The number of days per month already included in the Construction Period is listed below. Adverse weather conditions should be expected to be equal to or less than those listed below per month, as these would be considered normal conditions and not subject to additional time for construction due to adverse weather. Any documented adverse weather conditions beyond the amount listed below may be considered, at the request of the CONTRACTOR, for additional construction time. Adverse weather for the purposes of this Contract shall be defined as days in which precipitation exceeds 0.1” and/or the average temperature is below 32 degrees F. Days not meeting these criteria during daylight hours shall not be considered as adverse weather days.

If the CONTRACTOR’s normal operations for the project do not include weekend and holiday work, then those days may not be counted as adverse weather days, regardless of actual recorded weather conditions. Adverse weather conditions on weekends and holidays may be considered by the OWNER for a contract time adjustment provided that the CONTRACTOR has provided a minimum of four (4) working days notice to the RO, ENGINEER and OWNER of his intention to work on a weekend and/or holiday.

Any day that the CONTRACTOR mobilizes forces to the project site and the RO is required to be on site for two (2) hours or longer shall not be considered for a claim of adverse weather. Any day that the CONTRACTOR chooses not to work due to weather or site conditions, but fails to notify the RO in a timely manner, shall not be considered for a claim of adverse weather.

The CONTRACTOR is required to report any days missed due to adverse weather conditions in the previous month at the monthly Progress Meetings. No days other than those reported by the CONTRACTOR at monthly Progress Meetings shall be considered for adverse weather time extensions.

The contract documents establish the documentation requirements for adverse weather days claims by the CONTRACTOR. Any claims not in accordance with those requirements shall not be considered.

The CONTRACTOR and the RO shall both record weather conditions at the project site on a daily basis and shall reconcile their notes and records at least weekly.

The normal adverse weather days are calculated using data from the National Oceanic and Atmospheric Administration and are as follows:

<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
15	12	9	8	8	7	8	7	6	5	7	11

Days in which the CONTRACTOR does not attempt to work, and which are not satisfactorily documented as an adverse weather day, will not be considered in any request for construction time extension by the CONTRACTOR.

11. ITEMS DELETED, REDUCED AND/OR INCREASED

The OWNER reserves the right to delete any bid item or, in the case of unit price items, delete, reduce or increase the quantities involved. Bidders shall be aware of this possibility and shall base their bids accordingly.

12. PROPERTY OWNER RELEASE

The OWNER reserves the right to require the CONTRACTOR to obtain a written, signed Release from any or all property owners impacted by the Work prior to final payment to the CONTRACTOR. The Release form is included in the Appendix and may be required from all property owners impacted by the project, regardless of whether work was performed on right-of-way or on easements.

13. BUILDER’S RISK AND WORKMEN’S COMPENSATION INSURANCE

The CONTRACTOR shall secure “All Risk” type Builder’s Risk Insurance for Work to be performed. Unless specifically authorized by the OWNER, the amount of such insurance shall not be less than the Contract Price totaled in the awarded Bid. The policy shall cover not less than the losses due to fire, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft and smoke during the Contract Time, and until the Work is accepted by the OWNER. The policy shall name as the insured the CONTRACTOR, the ENGINEER and the OWNER. The CONTRACTOR shall secure insurance that will protect him/her from claims set forth from the following: workmen’s compensations, disability benefit and other similar employee benefit acts.

14. APPROVED EQUAL CLAUSE

- a. Any reference to a specific equipment brand name within the Specifications or Drawings shall be deemed to include “or approved equal”.
- b. Delete any statement such as “No other manufacturers are acceptable” within the Specifications.

15. DISPOSAL OF TRENCH WATER

The CONTRACTOR shall not dispose of any trench water by allowing it to enter any sanitary sewer system without first obtaining written permission to do so from the owner of said system. Documentation of written permission must be provided to the ENGINEER and OWNER.

16. PREVAILING WAGE RATES

Due to the project funding of this project, prevailing wage rates will **NOT** be required.

17. GENERAL

- a. Reasonable care shall be taken by the CONTRACTOR during construction to avoid damage to existing vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees that 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. Property owners shall be notified by the CONTRACTOR prior to any alteration to existing trees and/or landscaping on their property.
- b. CONTRACTOR shall implement Best Management Practices as described in the Kentucky Best Management Practices for Construction Activities prepared by Division of Conservation and Division of Water, Natural Resources and Environmental Protection Cabinet.
- c. Installers of the AMR meters shall have experience installing this type of system and be able to demonstrate installation experience on at least three (3) similar projects.
- d. Installation of the AMR meters shall include meter adaptors or any other miscellaneous items required for a complete installation.
- e. Installation of the AMR meters shall include recording standard meter change out information including last reading, new reading, meter id, register id, etc.
- f. Installation of the AMR metes shall also include any programming, activation with gps coordinates, etc. as required.
- g. All existing meters removed shall remain the property of the Owner and delivered to the Owner.

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**SECTION 01010**  
**Summary of Work**

**PART 1 GENERAL**

**1.1 DESCRIPTION**

- A. The Work to be performed under this Contract shall consist of furnishing all labor, materials, tools, equipment and incidentals and performing all Work required to construct complete in place and ready to operate the Project as shown on the Drawings and as specified.

**1.2 PROJECT LOCATION**

The equipment and materials to be furnished will be installed at the locations shown on the Drawings.

**1.3 QUANTITIES**

The OWNER reserves the right to alter the quantities of work to be performed or to extend or shorten the improvements at any time when and as found necessary, and the CONTRACTOR shall perform the work as altered, increased or decreased. Payment for such increased or decreased quantity will be made in accordance with the Instructions to Bidders. No allowance will be made for any change in anticipated profits nor shall such changes be considered as waiving or invalidating any conditions or provisions of the Contract and Bond.

**1.4 PARTIAL OWNER OCCUPANCY**

The existing facilities to which these improvements are being made will continue operation during the period of construction.

END OF SECTION

**SECTION 01020  
VIDEOTAPING**

**PART 1 GENERAL**

**1.1 DESCRIPTION OF WORK**

This Section covers the provision for the CONTRACTOR to provide all labor, materials, equipment, services and perform all operations necessary to furnish to the OWNER and ENGINEER a complete, color audio-video record of the surface features within the proposed construction's zone of influence. This record shall include, but not be limited to, all audio-video tape storage cases, tape logs and indexes. The purpose of this coverage shall be to accurately document the pre-construction condition of these features within the project area.

**PART 2 MATERIALS**

**2.1 GENERAL**

The total audio-video recording system and the procedures employed in its use shall be such as to produce a finished product that will fulfill the technical requirements of the project, as well as those more subjective requirements of high quality audio and video production. The video portion of the recording shall reproduce bright, sharp, clear pictures with accurate colors and shall be free from distortion, tearing, rolls, or any other form of picture imperfection. The audio portion of the recording shall reproduce the commentary of the camera operator with proper volume, clarity and be free from distortion. Recording speed shall be compatible for playback in SP mode.

The recording system shall utilize EIA standard video and NTSC compatible color (American TV Standard), and shall utilize digital technology.

**2.2 VIDEO TAPE**

The video tape furnished to the OWNER and ENGINEER shall be high energy extended still frame capable, color, DVD. The video shall be new and thus shall not have been used for any previous recording. The CONTRACTOR shall provide the ENGINEER a copy of the DVD.

**2.3 VIDEO TAPE PLAYBACK COMPATIBILITY**

The recorded video tapes shall be compatible for playback with any American TV Standard DVD player, or VHS player if approved.

**PART 3 EXECUTION**

**3.1 VIDEO CONTENT**

**A. General**

The recording shall contain coverage of all surface features located within the construction's zone of influence. The construction's zone of influence



shall be defined (1) as the area within the permanent and temporary easements, and areas adjacent to these easements which may be affected by routine construction operations; and (2) by the direction of the ENGINEER and/or OWNER. The surface features within the construction's zone of influence shall include, but not be limited to, all roadways, pavements, curbs, driveways, sidewalks, culverts, headwalls, retaining walls, buildings, landscaping, trees, shrubbery and fences. Of particular concern shall be the existence or non-existence of any faults, fractures or defects prior to construction.

B. Streets

Where construction will extend in or adjacent to a street, the full width of the construction's zone of influence including the street right-of-way shall be recorded, unless otherwise authorized by the ENGINEER. The term street shall be understood to mean a highway, road, street, avenue, boulevard, lane, circle, alley, etc.

C. Easements

Where construction will extend through easement areas, the permanent and temporary easements and all other adjacent areas lying within the construction's zone of influence shall be recorded. The term easement shall be understood to mean all areas not defined as streets.

### 3.2 ALPHA-NUMERIC DISPLAYS

All video recordings must, by electronic means, display continuously and simultaneously generated, transparent, alpha-numeric information to include the following:

A. Video Tape Index, Number, Project Title and General Project Location

Each video tape shall begin with a single, multi-line, alpha-numeric display indicating the video tape index number, project title and general location of the project.

B. Time and Date

During the entire duration of the recordings, the time (in hours, minutes and seconds separated by colons) and date (consisting of month, day and year separated by slashes) of recording must appear in the upper left-hand corner of the picture.

C. Name and Side of Street or Easement

During the entire duration of the recordings, the name and side of the street or easement being recorded must appear across the bottom of the

picture.

D. Camera Position

During the entire duration of the recordings, the position of the camera, accurately referenced and displayed in terms of the construction's engineering stationing, shall be displayed (in standard stationing format) in the lower left-hand corner of the picture. Where no stationing appears on the engineering plans, an appropriate stationing system, acceptable to the ENGINEER and OWNER, shall be established and utilized.

### 3.3 AUDIO CONTENT

Accompanying the video recording of each video tape shall be corresponding and simultaneously recorded audio. This audio recording, exclusively containing the commentary of the camera operator, shall assist in the maintenance of viewer orientation and in any needed identification, differentiation, clarification or objective description of the structures being shown in the video portion of the recording. The audio recording also shall be free from any conversations between the camera operator and the other production technicians.

### 3.4 VIDEO TAPE INDEXING

A. Video Tape Identification

All video tapes and their vinyl storage cases shall be properly identified by video tape index number, project title, and general project location.

B. Video Tape Logs

Displayed on the storage case of each video tape shall be a log of that video tape's contents. That log shall describe the various segments of coverage contained on that video tape in terms of the names and sides of the streets or easements, coverage beginning and endpoints, directions of coverage and video tape player counter numbers.

C. Cumulative Index

A cumulative alphabetical index correlating the various segments of coverage to their corresponding video tapes shall be supplied to the OWNER and ENGINEER.

### 3.5 PROCEDURAL REQUIREMENTS

A. General

The following procedures shall be implemented in the production of pre-construction color audio-video tape documentation. Above all, the documentation shall be executed in a conscientious and professional

manner to assure the end product's maximum usefulness to the OWNER and ENGINEER.

B. Time of Execution

- a. Recording Schedule - The recording shall be performed prior to the placement of any construction materials or equipment on the proposed construction site.
- b. Visibility - All recording shall be performed during times of good visibility. No recording shall be done during periods of significant precipitation, mist or fog. The recording shall only be done when sufficient sunlight is present to properly illuminate the subjects of recordings, and to produce bright, sharp video recordings of those subjects.

C. Coverage Continuity

The recording shall commence at Station 0+00 of each line, and run continuously uninterrupted to its end. If hand held walking is necessary, it shall be done to insure a complete uninterrupted record.

D. Coverage Rates

The average rate of travel during a particular segment of coverage (e.g. coverage of one side of a street) shall be indirectly proportional to the number, size and value of the surface features within that construction area's zone of influence. The following table, which characterizes typical areas and sets the maximum average rates of travel in those areas, shall be used to establish approximate limits on actual average rates of travel:

	<u>Area</u>	<u>Typically Characterized By</u>	<u>Avg. Rate Max.</u>
a.	High Density (e.g. developed subdivisions)	Hard Surface Streets, Curbs, Drives & Sidewalks; 50 Ft. Lots; Very Few Empty Lots	30 Ft./Min.
b.	Med. Density (e.g. partially developed)	Gravel Roads, Hard & Soft Surface Drives, No sidewalks, Culverts & Headwalls, 100 Ft. Lots; Few Empty Lots	60 Ft./Min.
c.	Low Density (e.g. suburban or woods, occasional houses, fringe)	Gravel Roads, Small Fields	90 Ft./Min.
d.	Extra Low Density (e.g. rural)	Gravel Roads, Large Fields, Sparse Number of Houses	120 Ft./Min.

**3.6 CAMERA POSITIONING AND STABILITY**

- a. Camera Height and Stability - When conventional wheeled vehicles are used as conveyances for the recording system, the distance between the camera lens and the ground shall not be more than 12 feet. The camera shall be firmly mounted, such that transport of the camera during the recording process will not cause an unsteady picture.
- b. Camera Control - Camera pan, tilt, zoom-in and zoom-out rates shall be sufficiently controlled such that recorded objects will be clearly viewed during video tape playback. In addition, all other camera and recording system controls, such as lens focus and aperture, video level, pedestal, chroma, white balance and electrical focus, shall be properly controlled or adjusted to maximize recorded picture quality.
- c. Viewer Orientation Techniques - The audio and video portions of the recording shall maintain viewer orientation. To this end, overall establishing views and visual displays of all visible house and building addresses shall be utilized. In easements where the proposed construction location will not be readily apparent to the video tape viewer, highly visible yellow flags shall be placed in such fashion as to clearly indicate the proposed center line of construction.

### **3.7 ENTERING PRIVATE PROPERTY**

When planning on entering private property, the CONTRACTOR shall notify the owner of such property to obtain his/her permission to do so. Should the owner of the property refuse to give his permission for said entry, the CONTRACTOR shall immediately notify the OWNER and ENGINEER, who will obtain the right to enter the property through the legal powers vested in the OWNER as a public entity. The CONTRACTOR is advised that he shall not enter any private property before permission is granted to do so, or the OWNER has notified the CONTRACTOR that he has gained the legal right to do so. The CONTRACTOR shall be liable for entry made other than as stated above.

## **PART 4 OWNER'S OPTIONS**

### **4.1 Documentation Additions and Omission**

The OWNER and/or ENGINEER shall have the authority to designate what areas may be added to or omitted from the video tape documentation.

### **4.2 Specification Deviations**

Any deviation from the above specifications must have the written approval of the OWNER.

## **PART 5 COORDINATION**

- 5.1 The CONTRACTOR shall coordinate the video tape recording with the construction schedule so that those portions of the construction that will be completed first will be recorded first. Construction shall not begin in an area until acceptable video tapes have been delivered to the OWNER and ENGINEER.

**PART 6 VIDEO TAPE DELIVERY**

- 6.1** The CONTRACTOR shall deliver the video tape recordings to the OWNER and ENGINEER upon their completion as a whole, or upon request by the OWNER or ENGINEER, deliver specific video tape recordings to the OWNER and ENGINEER upon their completion. Upon delivery and acceptance of the video tapes, transfer of ownership of those video tapes shall be made to the OWNER.

**PART 7 UNACCEPTABLE DOCUMENTATION**

- 7.1** The OWNER or ENGINEER shall have the authority to reject all or any portion of the video tape documentation not conforming to specifications. Those rejected portions shall be redone by the CONTRACTOR at no additional cost to the OWNER.

END OF SECTION

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**SECTION 01041**  
**Project Coordination**

**PART 1 GENERAL**

**1.1 SCOPE**

- A. Management of the Project shall be through the use of a logical method of construction planning, inspection, scheduling and cost value documentation.
- B. The work under this Section includes all surface and subsurface condition inspections and coordination by the CONTRACTOR necessary for the proper and complete performance of the Work.
- C. This Section applies to the work of every division and every section of these Specifications.

**1.2 SITE CONDITIONS**

- A. Inspection
  - 1. Prior to performing any work under a section, the CONTRACTOR shall carefully inspect the installed work of other trades and verify that all such work is complete to the point where the work under that section may properly commence.
  - 2. The CONTRACTOR shall verify that all materials, equipment and products to be installed under a section may be installed in strict accordance with the original design and pertinent reviewed shop drawings.
- B. Discrepancies
  - 1. In the event of discrepancy, immediately notify the ENGINEER.
  - 2. Do not proceed with construction in areas of discrepancy until all such discrepancies have been fully resolved.

**1.3 COORDINATION**

- A. Carefully coordinate work with all other trades and subcontractors to insure proper and adequate interface of the work of other trades and subcontractors with the work of every section of these Specifications.
- B. The CONTRACTOR shall coordinate operations with all utility companies in or adjacent to the area of CONTRACTOR's work. The CONTRACTOR shall require said utilities to identify in the field their property and provide drawings as necessary to locate them.

END OF SECTION

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**SECTION 01150**  
**Measurement and Payment****PART 1 GENERAL**

- 1.1 The CONTRACTOR shall provide all necessary labor, materials, tools, equipment, insurances, and permits, etc., and perform all other related work, as may be required for the work in accordance with the applicable terms of these Specifications and other pertinent documents, etc.
- 1.2 The cost associated with the preparation of submittal and the preparation for and attendance at all project meetings shall be incidental to the work.
- 1.3 Items shown in the plan but not expressly described herein shall be considered incidental to the work.
- 1.4 Lump sum items shall be paid upon completion and acceptance of all work covered by the item. However, CONTRACTOR may submit an application for partial payment of lump sum items. Such application shall be in writing and shall define and provide justification for desired break down of the lump sum items. The application will be reviewed by the ENGINEER in a timely manner and any concerns will be discussed with the CONTRACTOR prior to issuing written agreement with the partial payment scheme. It is recommended that Partial Payment Applications be submitted and approval sought prior to the submission of the first invoice for the project.
- 1.5 The quantities shown are estimated. Only the actual quantities required, furnished, and installed and/or removed, will be eligible for payment. No minimum(s) is/are guaranteed.
- 1.6 The CONTRACTOR will NOT be paid for any items herein in excess of the estimated quantities or for any items not contained in the proposal(s) unless the CONTRACTOR has obtained WRITTEN authorization from the ENGINEER before proceeding with the work.
- 1.7 The various phases of contractual work that are required to complete the subject project must be performed in a most expeditious manner and to the satisfaction of the ENGINEER

**PART 2 PAY ITEMS****2.1 ROCK EXCAVATION**

Excavation is unclassified, therefore, separate measurement or payment will not be made.

**2.2 PUMP STATION**

- A. Measurement – This is a Lump Sum Bid Item and measurement will not be required.
- B. Payment – Payment for the Pump Station shall be made on the basis of the Lump Sum Price Bid and shall constitute full compensation for preconstruction video, all pumps, valves, fittings, piping, building, controls, heaters, fans, lights, electrical, transfer switch, concrete, gravel drive, power pole, water line, gate valves, connection to existing water line, fencing, site work, seeding and restoration as shown on the plans and described in

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Measurement and Payment

the specifications complete in place.

**2.3 SCADA SYSTEM**

- A. Measurement – This is a Lump Sum Bid Item and measurement will not be required.
- B. Payment – Payment for the SCADA System shall be made on the basis of the Lump Sum Price Bid and shall constitute full compensation for the proposed pump station remote unit, modifications to the existing SCADA System, testing, installation, startup, training, etc. as shown on the plans and described in the specifications complete in place.

**2.4 DEMOLITION OF EXISTING PUMP STATION**

- A. Measurement – This is a Lump Sum Bid Item and measurement will not be required.
- B. Payment - Payment for the Existing Pump Station Demolition shall be made on the basis of the Lump Sum price bid and shall constitute full compensation for removal and proper disposal of the pump station, seeding and restoration and all miscellaneous items as shown on plans and described in Section 02073 of the specifications. Compensation shall also include grading, seeding and other incidental and related work necessary for completion.

END OF SECTION



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**SECTION 01340**  
**Shop Drawings, Product Data and Samples**

**PART 1 GENERAL**

**1.1 SCOPE**

- A. The work under this Section includes submittal to the ENGINEER of shop drawings, product data and samples required by the various sections of these Specifications.
- B. Submittal Contents: The submittal contents required are specified in each section.
- C. The following forms shall be used for all major components of the work:
  - 1. Typical Maintenance Summary Form
  - 2. Notice of Start of Manufacturing
  - 3. Notice of Shipment of Equipment
  - 4. Notice of Schedule Impact

The forms are included at the back of this section.

- D. Definitions: Submittals are categorized as follows:
  - 1. Shop Drawings
    - a. Shop drawings shall include technical data, drawings, diagrams, procedure and methodology, performance curves, schedules, templates, patterns, test reports, calculations, instructions, measurements and similar information as applicable to the specific item for which the shop drawing is prepared.
    - b. Provide newly-prepared information, on reproducible sheets, with graphic information at accurate scale (except as otherwise indicated) or appropriate number of prints hereof, with name or preparer (firm name) indicated. The Contract Drawings shall not be traced or reproduced by any method for use as or in lieu of detail shop drawings. Show dimensions and note which are based on field measurement. Identify materials and products in the work shown. Indicate compliance with standards and special coordination requirements. Do not allow shop drawing copies without appropriate final "Action" markings by the ENGINEER to be used in connection with the Work.
    - c. Drawings shall be presented in a clear and thorough manner. Details shall be identified by reference to sheet and detail, specification section, schedule or room numbers shown on the Contract Drawings.

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Shop Drawings, Product Data and Samples

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- d. Minimum assembly drawings sheet size shall be 24 x 36-inches.
  - e. Minimum detail sheet size shall be 8-1/2 x 11-inches.
  - f. Minimum Scale:
    - (1) Assembly Drawings Sheet, Scale: 1-inch = 30 feet.
    - (2) Detail Sheet, Scale: 1/4-inch = 1 foot.
2. Product Data
- a. Product data includes standard printed information on materials, products and systems, not specially prepared for this Project, other than the designation of selections from among available choices printed therein.
  - b. Collect required data into one submittal for each unit of work or system, and mark each copy to show which choices and options are applicable to the Project. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements which have been checked and special coordination requirements.
3. Samples
- a. Samples include both fabricated and un-fabricated physical examples of materials, products and units of work, both as complete units and as smaller portions of units of work, either for limited visual inspection or, where indicated, for more detailed testing and analysis.
  - b. Provide units identical with final condition of proposed materials or products for the work. Include "range" samples, not less than three units, where unavoidable variations must be expected, and describe or identify variations between units of each set. Provide full set of optional samples where the ENGINEER'S selection is required. Prepare samples to match the ENGINEER'S sample where indicated. Include information with each sample to show generic description, source or product name and manufacturer, limitations and compliance with standards. Samples are submitted for review and confirmation of color, pattern, texture and "kind" by the ENGINEER. ENGINEER will note "test" samples, except as otherwise indicated, for other requirements, which are the exclusive responsibility of the CONTRACTOR.
4. Miscellaneous submittals related directly to the Work (non-administrative) include warranties, maintenance agreements, workmanship bonds, project photographs, survey data and reports, physical work records, statements of applicability, quality testing and certifying reports, copies of industry standards, record drawings, field measurement data, operating and maintenance

materials, overrun stock, security/protection/safety keys and similar information, devices and materials applicable to the Work but not processed as shop drawings, product data or samples.

## 1.2 SPECIFIC CATEGORY REQUIREMENTS

- A. General: Except as otherwise indicated in the individual work sections, comply with general requirements specified herein for each indicated category of submittal. Submittals shall contain:
1. The date of submittal and the dates of any previous submittals.
  2. The Project title.
  3. Numerical submittal numbers, starting with 1.0, 2.0, etc. Revisions to be numbered 1.1, 1.2, etc.
  4. The Names of:
    - a. Contractor
    - b. Supplier
    - c. Manufacturer
  5. Identification of the product, with the Specification section number, permanent equipment tag numbers and applicable Drawing No.
  6. Field dimensions, clearly identified as such.
  7. Relation to adjacent or critical features of the Work or materials.
  8. Applicable standards, such as ASTM or Federal Specification numbers.
  9. Notification to the ENGINEER in writing, at time of submissions, of any deviations on the submittals from requirements of the Contract Documents.
  10. Identification of revisions on resubmittals.
  11. An 8 x 3-inch blank space for CONTRACTOR and ENGINEER stamps.
  12. CONTRACTOR'S stamp, initialed or signed, certifying to review of submittal, verification of products, field measurements and field construction criteria and coordination of the information within the submittal with requirements of the Work and of Contract Documents.
  13. Submittal sheets or drawings showing more than the particular item under consideration shall have all but the pertinent description of the item for which

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Shop Drawings, Product Data and Samples

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review is requested crossed out.

### **1.3 ROUTING OF SUBMITTALS**

- A. Submittals and routine correspondence shall be routed as follows:
1. Supplier to CONTRACTOR (through representative if applicable)
  2. CONTRACTOR to ENGINEER
  3. ENGINEER to CONTRACTOR and OWNER
  4. CONTRACTOR to Supplier

### **1.4 ADDRESS FOR COMMUNICATIONS**

Engineer: HMB Professional Engineers, Inc.  
3 HMB Circle  
Frankfort, KY 40601  
OFFICE (502) 695-9800  
FAX (502) 695-9810

## **PART 2 PRODUCTS**

### **2.1 SHOP DRAWINGS**

- A. Unless otherwise specifically directed by the ENGINEER, make all shop drawings accurately to a scale sufficiently large to show all pertinent features of the item and its method of connection to the Work.
- B. Submit all shop assembly drawings, larger than 11 x 17-inches, in the form of one reproducible transparency with two opaque prints or blueines.
- C. Submit all shop drawings, 11 x 17-inches and smaller, in the form of six opaque prints or blueines.
- D. One reproducible for all submittals larger than 11 x 17-inches and no more than three prints of other submittals will be returned to the CONTRACTOR.

### **2.2 MANUFACTURER'S LITERATURE**

- A. Where content of submitted literature from manufacturers includes data not pertinent to this submittal, clearly indicate which portion of the contents is being submitted for the ENGINEER'S review.
- B. Submit the number of copies which are required to be returned (not to exceed three)

plus three copies which will be retained by the ENGINEER.

### 2.3 SAMPLES

- A. Samples shall illustrate materials, equipment or workmanship and established standards by which completed work is judged.
- B. Unless otherwise specifically directed by the ENGINEER, all samples shall be of the precise article proposed to be furnished.
- C. Submit all samples in the quantity which is required to be returned plus one sample which will be retained by the ENGINEER.

### 2.4 COLORS

- A. Unless the precise color and pattern is specifically described in the Contract Documents, wherever a choice of color or pattern is available in a specified product, submit accurate color charts and pattern charts to the ENGINEER for review and selection.
- B. Unless all available colors and patterns have identical costs and identical wearing capabilities, and are identically suited to the installation, completely describe the relative costs and capabilities of each.

## PART 3 EXECUTION

### 3.1 CONTRACTOR'S COORDINATION OF SUBMITTALS

- A. Prior to submittal for the ENGINEER'S review, the CONTRACTOR shall use all means necessary to fully coordinate all material, including the following procedures:
  - 1. Determine and verify all field dimensions and conditions, catalog numbers and similar data.
  - 2. Coordinate as required with all trades and all public agencies involved.
  - 3. Submit a written statement of review and compliance with the requirements of all applicable technical Specifications as well as the requirements of this Section.
  - 4. Clearly indicate in a letter or memorandum on the manufacturer's or fabricator's letterhead, **all deviations** from the Contract Documents.
- B. Each and every copy of the shop drawings and data shall bear the CONTRACTOR'S stamp showing that they have been so checked. Shop drawings submitted to the ENGINEER without the CONTRACTOR'S stamp will be returned to the

CONTRACTOR for conformance with this requirement.

- C. The Owner may backcharge the CONTRACTOR for costs associated with having to review a particular shop drawing, product data or sample more than two times to receive a "No Exceptions Taken" mark.
- D. Grouping of Submittals
  - 1. Unless otherwise specifically permitted by the ENGINEER, make all submittals in groups containing all associated items.
  - 2. No review will be given to partial submittals of shop drawings for items which interconnect and/or are interdependent. It is the CONTRACTOR'S responsibility to assemble the shop drawings for all such interconnecting and/or interdependent items, check them and then make one submittal to the ENGINEER along with CONTRACTOR'S comments as to compliance, non-compliance or features requiring special attention.
- E. Schedule of Submittals: Within 30 days of Contract award and prior to any shop drawing submittal, the CONTRACTOR shall submit a schedule showing the estimated date of submittal and the desired approval date for each shop drawing anticipated. A reasonable period shall be scheduled for review and comments. Time lost due to unacceptable submittals shall be the CONTRACTOR'S responsibility and some time allowance for resubmittal shall be provided. The schedule shall provide for submittal of items which relate to one another to be submitted concurrently.

### **3.2 TIMING OF SUBMITTALS**

- A. Make all submittals far enough in advance of scheduled dates for installation to provide all required time for reviews, for securing necessary approvals, for possible revision and resubmittal, and for placing orders and securing delivery.
- B. In scheduling, allow sufficient time for the ENGINEER'S review following the receipt of the submittal.

### **3.3 REVIEWED SHOP DRAWINGS**

- A. ENGINEER Review
  - 1. Allow a minimum of 14 days for the ENGINEER'S initial processing of each submittal requiring review and response, except allow longer periods where processing must be delayed for coordination with subsequent submittals. The ENGINEER will advise the CONTRACTOR promptly when it is determined that a submittal being processed must be delayed for coordination. Allow a minimum of two weeks for reprocessing each submittal. Advise the ENGINEER on each submittal as to whether processing time is critical to progress of the Work, and therefore the Work would be expedited if processing time could be foreshortened.

2. Acceptable submittals will be marked "No Exceptions Taken". A minimum of three copies will be retained by the ENGINEER for ENGINEER'S and the OWNER'S use and the remaining copies will be returned to the CONTRACTOR.
  3. Submittals requiring minor corrections before the product is acceptable will be marked "Make Corrections Noted". The CONTRACTOR may order, fabricate and ship the items included in the submittals, provided the indicated corrections are made. Drawings must be resubmitted for review and marked "No Exceptions Taken" prior to installation or use of products.
  4. Submittals marked "Amend and Resubmit" must be revised to reflect required changes and the initial review procedure repeated.
  5. The "Rejected - See Remarks" notation is used to indicate products which are not acceptable. Upon return of a submittal so marked, the CONTRACTOR shall repeat the initial review procedure utilizing acceptable products.
  6. Only two copies of items marked "Amend and Resubmit" and "Rejected - See Remarks" will be reviewed and marked. One copy will be retained by the ENGINEER and the other copy with all remaining unmarked copies will be returned to the CONTRACTOR for resubmittal.
- B. No work or products shall be installed without a drawing or submittal bearing the "No Exceptions Taken" notation. The CONTRACTOR shall maintain at the job site a complete set of shop drawings bearing the ENGINEER'S stamp.
- C. Substitutions: In the event the CONTRACTOR obtains the ENGINEER'S approval for the use of products other than those which are listed first in the Contract Documents, the CONTRACTOR shall, at the CONTRACTOR'S own expense and using methods approved by the ENGINEER, make any changes to structures, piping and electrical work that may be necessary to accommodate these products.
- D. Use of the "No Exceptions Taken" notation on shop drawings or other submittals is general and shall not relieve the CONTRACTOR of the responsibility of furnishing products of the proper dimension, size, quality, quantity, materials and all performance characteristics, to efficiently perform the requirements and intent of the Contract Documents. The ENGINEER'S review shall not relieve the CONTRACTOR of responsibility for errors of any kind on the shop drawings. Review is intended only to assure conformance with the design concept of the Project and compliance with the information given in the Contract Documents. The CONTRACTOR is responsible for dimensions to be confirmed and correlated at the job site. The CONTRACTOR is also responsible for information that pertains solely to the fabrication processes or to the technique of construction and for the coordination of the work of all trades.

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Shop Drawings, Product Data and Samples

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### **3.4 RESUBMISSION REQUIREMENTS**

#### **A. Shop Drawings**

1. Revise initial drawings as required and resubmit as specified for initial submittal, with the resubmittal number shown.
2. Indicate on drawings all changes which have been made other than those requested by the ENGINEER.

#### **B. Project Data and Samples: Resubmit new data and samples as specified for initial submittal, with the resubmittal number shown.**

END OF SECTION



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**SECTION 01562**

**Dust Control**

**PART 1 GENERAL**

**1.1 SCOPE**

Limit blowing dust caused by construction operations by applying water or employing other appropriate means or methods to maintain dust control, subject to the approval of the OWNER. As a minimum, this may require the use of a water wagon twice a day to suppress dusty conditions.

**1.2 PROTECTION OF ADJACENT PROPERTY**

- A. The Bidders shall visit the site and note the buildings, landscaping, roads, parking areas and other facilities near the Work site that may be damaged by their operations. The CONTRACTOR shall make adequate provision to fully protect the surrounding area and will be held fully responsible for all damages resulting from CONTRACTOR'S operations.
- B. Protect all existing facilities (indoors or out) from damage by dust, fumes, spray or spills (indoors or out). Protect motors, bearings, electrical gear, instrumentation and building or other surfaces from dirt, dust, welding fumes, paint spray, spills or droppings causing wear, corrosion, malfunction, failure or defacement by enclosure, sprinkling or other dust palliatives, masking and covering, exhausting or containment.

END OF SECTION

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**SECTION 01720**  
**Record Documents**

**PART 1 GENERAL**

**1.1 SCOPE**

- A. The work under this Section includes, but is not necessarily limited to, the compiling, maintaining, recording and submitting of project record documents as herein specified.
- B. Record documents include, but are not limited to:
  - 1. Drawings;
  - 2. Specifications;
  - 3. Change orders and other modifications to the Contract;
  - 4. ENGINEER field orders or written instructions, including Requests for Information (RFI) and Clarification Memorandums;
  - 5. Reviewed shop drawings, product data and samples;
  - 6. Test records.
- C. The CONTRACTOR shall maintain on the Project site throughout the Contract Time an up to date set of Record Drawings.

**1.2 MAINTENANCE OF DOCUMENTS AND SAMPLES**

- A. Storage
  - 1. Store documents and samples in the CONTRACTOR'S field office, apart from documents used for construction.
  - 2. Provide files and racks for storage of documents.
  - 3. Provide locked cabinet or secure storage space for storage of samples.
- B. File documents and samples in accordance with format of these Specifications.
- C. Maintenance
  - 1. Maintain documents in a clean, dry, legible condition and in good order.
  - 2. Do not use record documents for construction purposes.
  - 3. Maintain at the site for the OWNER one copy of all record documents.

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Record Documents

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- D. Make documents and samples available at all times for inspection by Engineer.
- E. Failure to maintain the Record Documents in a satisfactory manner may be cause for withholding of a certificate for payment.

### **1.3 QUALITY ASSURANCE**

- A. Unless noted otherwise, Record Drawings shall provide dimensions, distances and coordinates to the nearest 0.1 foot.
- B. Unless noted otherwise, Record Drawings shall provide elevations to the nearest 0.01 foot for all pertinent items constructed by the CONTRACTOR.

### **1.4 RECORDING**

- A. Label each document "PROJECT RECORD" in neat, large printed letters.
- B. Recording
  - 1. Record information concurrently with construction progress.
  - 2. Do not conceal any work until required information is recorded.

### **1.5 RECORD DRAWINGS**

- A. Record Drawings shall be reproducible, shall have a title block indicating that the drawings are Record Drawings, the name of the company preparing the Record Drawings, and the date the Record Drawings were prepared. The CONTRACTOR will be provided paper sepias of the Drawings, or it may elect to provide reproducible drawings via another method. Reproducible shall be defined as being translucent so as to allow a blueline print to be produced.
- B. Legibly mark drawings to record actual construction, including:
  - 1. All Construction
    - a. Changes of dimension and detail.
    - b. Changes made by Requests for Information (RFI), field order, clarification memorandums or by change order.
    - c. Details not on original Drawings.
  - 2. Site Improvements, Including Underground Utilities

- a. Horizontal and vertical locations of all exposed and underground utilities and appurtenances, both new facilities constructed and those utilities encountered, referenced to permanent surface improvements.
  - b. Location of and dimensions of roadways and parking areas, providing dimensions to back of curb when present.
  - c. The locations shall be referenced to at least two easily identifiable, permanent landmarks (e.g., power poles, valve markers, etc.) or benchmarks.
  - d. The Record Drawings shall include the horizontal angle and distance between manhole covers.
3. Structures
- a. Depths of various elements of foundation in relation to finish first floor datum or top of wall.
  - b. Location of internal and buried utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.

## 1.6 SPECIFICATIONS

- A. Legibly mark each section to record:
1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
  2. Changes made by Requests for Information (RFI), field order, clarification memorandums, or by change order.

## 1.7 SUBMITTAL

- A. At contract closeout, deliver Record Documents to the ENGINEER for the OWNER.
- B. Accompany submittal with transmittal letter, in duplicate, containing:
1. Date
  2. Project title and number
  3. CONTRACTOR'S name and address
  4. Title and number of each record document

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Record Documents

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5. Signature of CONTRACTOR or CONTRACTOR'S authorized representative

END OF SECTION

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**SECTION 02010**  
**Subsurface Conditions**

**PART 1 GENERAL**

**1.1 DESCRIPTION**

- A. Investigation: The CONTRACTOR shall visit the site and become acquainted with site conditions. Prior to bidding, prospective CONTRACTORS may make their own site and subsurface investigations to satisfy themselves with site and subsurface conditions. The CONTRACTOR shall be responsible for obtaining rights of ingress and egress to private property for site and subsurface investigation and shall assume all responsibility for any damage to property caused as a result of the CONTRACTOR's investigation.
- B. No geotechnical investigation has been performed on this site. The CONTRACTOR is responsible for making their own determination of subsurface conditions.

END OF SECTION

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**SECTION 02073**  
**Removal of Existing Equipment**

**PART 1 GENERAL**

**1.1 SCOPE**

- A. The work covered under this Section includes furnishing all labor, equipment and material required to remove, handle, store and dispose of all materials from existing structures and piping as shown on the Drawings, directed by the Engineer or required for the completion of the work, including all necessary excavation, backfilling, grading, seeding, straw and fence removal/relocation.
- B. The Contractor shall remove the existing pump station as directed and dispose of in an approved manner, the pump station, all valves and piping, fencing, electrical and the like which are not to remain in service in the finished work, whether or not shown on the Drawings and/or specified herein.
- C. The work specified herein and shown on the Drawings is intended to give a general idea of the scope of this work but must not be construed as covering it entirely. The Contractor shall visit the site and judge the amount of work required and the problems the Contractor might encounter in the performance of the work.

**1.2 EQUIPMENT AND PIPING TO BE REMOVED**

- A. The existing equipment and piping to be removed and disposed of shall include, but not be limited to the following:
  - 1. The existing pump station, including but not limited to piping, valves.
  - 2. The existing fencing.
  - 3. Power pole.
  - 4. ALL electrical equipment associated with the pump station.

**PART 2 PRODUCTS**

**2.1 MATERIALS (N/A)**

**PART 3 EXECUTION**

**3.1 REMOVAL**

- A. The Contractor shall exercise full care and shall use such methods and equipment during removal as will maintain the usefulness of the various materials and equipment removed. The sequence and order of removal and the method of storing and disposal of removed equipment and piping shall be the responsibility of the CONTRACTOR but at all times subject to the direction and approval of the Engineer.
- B. Equipment specified to be removed shall be removed completely, including all related accessories and concrete bases.
- C. Prior to removing any electrical equipment, all power to the equipment shall be shut off and properly locked out. All power and control wiring for the equipment shall then be disconnected at the starter or circuit breaker, as applicable, and removed

Removal of Existing Equipment

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from the conduit. Unused conduits shall be plugged.

- D. Storage: All materials removed shall be the property of the CONTRACTOR unless otherwise noted.
- E. Disposal: The Contractor shall assume ownership of and dispose of offsite any removed equipment, piping, tanks and materials. The cost of disposing of any or all of the removed equipment, piping tanks and materials shall be included in the lump sum bid prices and no separate payment will be made, therefore.

END OF SECTION



**SECTION 02255**  
**Crushed Stone and Dense Graded Aggregate**

**PART 1 GENERAL**

**1.1 SCOPE**

- A. Furnish and install crushed stone for miscellaneous uses as shown on the Drawings, as called for in the Specifications.
- B. Sizes, types, and quality of crushed stone are specified in this Section, but its use for replacement of unsuitable material, pavement base, and similar uses is specified in detail elsewhere in the Specifications. The ENGINEER may order the use of crushed stone for purposes other than those specified in other sections, if, in his opinion, such use is advisable. Payment for same will be subject to negotiation.

**PART 2 PRODUCTS**

**2.1 MATERIALS**

- A. When referred to in these Specifications, crushed stone shall be Number 57 graded in accordance with the Kentucky Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction, Latest Edition, unless otherwise noted.
- B. When referred to in these Specifications, dense graded aggregate (DGA) shall be crushed stone classified by the Kentucky Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction, Latest Edition, and conforming to the following requirements:

<u>Sieve Size</u>	<u>Percent Passing</u>
1 inch	100
3/4 inch	70-100
3/8 inch	50-80
#4	35-65
#10	25-50
#40	15-30
#200	5-12

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Crushed Stone and Dense Grade Aggregate

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## **PART 3 EXECUTION**

### **3.1 INSTALLATION**

- A. Crushed stone shall be placed in uniform layers not greater than 6 inches deep and shaped by power equipment to required lines, grades, cross sections, 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.
- B. All compaction operation shall be performed to the satisfaction of the ENGINEER.
- C. Crushed stone shall be placed in those areas as shown on the Drawings, as may be directed by the ENGINEER and as required by the Contract Documents.

END OF SECTION

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**SECTION 02665**  
**Water Mains and Accessories**

**PART 1 GENERAL**

**1.01 SCOPE**

- A. This Section describes products to be incorporated into the water mains and requirements for the installation and use of these items. Furnish all products and perform all labor necessary to fulfill the requirements of these Specifications.
- B. General: Supply all products and perform all work in accordance with applicable American Society for Testing and Material (ASTM), American Water Works Association (AWWA), American National Standards Institute (ANSI), or other recognized standards. Latest revisions of all standards are applicable.

**1.02 QUALIFICATIONS**

If requested by the ENGINEER, submit evidence that manufacturers have consistently produced products of satisfactory quality and performance for a period of at least two years.

**1.03 SUBMITTALS**

Complete shop drawings and engineering data for all products shall be submitted to the ENGINEER in accordance with the requirements of Section 01340 of these Specifications.

**1.04 TRANSPORTATION AND HANDLING**

- A. Unloading: Furnish equipment and facilities for unloading, handling, distributing and storing pipe, fittings, valves and accessories. Make equipment available at all times for use in unloading. Do not drop or dump materials. Any materials dropped or dumped will be subject to rejection without additional justification. Pipe handled on skids shall not be rolled or skidded against the pipe on the ground.
- B. Handling: Handle pipe, fittings, valves and accessories carefully to prevent shock or damage. Handle pipe by rolling on skids, forklift, or front end loader. Do not use material damaged in handling. Slings, hooks or pipe tongs shall be padded and used in such a manner as to prevent damage to the exterior coatings or internal lining of the pipe.

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Water Mains and Accessories

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**1.05 OWNER FURNISHED MATERIALS (Not Used)****1.06 STORAGE AND PROTECTION**

- A. Store all pipe which cannot be distributed along the route. CONTRACTOR shall make arrangements for the use of suitable storage areas.
- B. Stored materials shall be kept safe from damage. The interior of all pipe, fittings and other appurtenances shall be kept free from dirt or foreign matter at all times. Valves and hydrants shall be drained and stored in a manner that will protect them from damage by freezing.
- C. Pipe shall not be stacked higher than the limits recommended by the manufacturer. The bottom tier shall be kept off the ground on timbers, rails or concrete. Pipe in tiers shall be alternated: bell, plain end; bell, plain end. At least two rows of timbers shall be placed between tiers and chocks, affixed to each other in order to prevent movement. The timbers shall be large enough to prevent contact between the pipe in adjacent tiers.
- D. Stored mechanical and push-on joint gaskets shall be placed in a cool location out of direct sunlight. Gaskets shall not come in contact with petroleum products. Gaskets shall be used on a first-in, first-out basis.
- E. Mechanical-joint bolts shall be handled and stored in such a manner that will ensure proper use with respect to types and sizes.

**1.07 QUALITY ASSURANCE**

The manufacturer shall provide written certification to the ENGINEER that all products furnished comply with all applicable requirements of these Specifications.

**PART 2 PRODUCTS****2.01 PIPING MATERIALS AND ACCESSORIES**

- A. Ductile Iron Pipe (DIP)
  - 1. Ductile iron pipe shall be manufactured in accordance with AWWA C151 (latest edition). All pipe, except specials, shall be furnished in nominal lengths of 18 to 20 feet. Sizes will be as shown on the Drawings. All pipe shall have a minimum pressure rating as indicated in the following table, and corresponding minimum wall thickness, unless otherwise specified or shown on the Drawings:

Pipe Sizes (inches)	Pressure Class (psi)
4 - 12	350
14 - 18	250
20	250
24	200
30 - 54	250
60 - 64	200

2. Flanged pipe minimum wall thickness shall be equal to Special Class 53. Flanges shall be furnished by the pipe manufacturer.
3. Pipe and fittings shall be cement lined in accordance with AWWA C104 (latest edition). Pipe and fittings shall be furnished with a bituminous outside coating.
4. Fittings shall be ductile iron and shall conform to AWWA C110 or AWWA C153 (latest edition) with a minimum rated working pressure of 250 psi or as indicated on plans.
5. Joints
  - a. Unless shown or specified otherwise, joints shall be push-on or restrained joint type for pipe and standard mechanical, push-on or restrained joints for fittings. Push-on and mechanical joints shall conform to AWWA C111 (latest edition). Restrained joints for pipe and fittings shall be American "FLEX-RING" or "LOK-RING", Clow "SUPER-LOCK", or U.S. Pipe "TR FLEX". No field welding of restrained joint pipe will be permitted. No mega lug type restraints are allowed on 24" and 30" water line.
  - b. Restrained joint pipe (RJP) on supports shall have bolted joints and shall be specifically designed for clear spans of at least 36 feet.
  - c. Flanged joints shall meet the requirements of ANSI B16.1, Class 125.
6. Provide the appropriate gaskets for mechanical and flange joints. Gaskets for flange joints shall be made of 1/8-inch thick, cloth reinforced rubber; gaskets may be ring type or full face type.

7. Provide the necessary bolts for mechanical, restrained and flange connections. Bolts for flange connections shall be steel with American Regular unfinished square or hexagon heads. Nuts shall be steel with American Standard Regular hexagonal dimensions, all as specified in ANSI B17.2. All bolts and all nuts shall be threaded in accordance with ANSI B1.1, Coarse Thread Series, Class 2A and 2B fit. Mechanical joint glands shall be ductile iron.
8. Acceptance will be on the basis of the ENGINEER'S inspection and the manufacturer's written certification that the pipe was manufactured and tested in accordance with the applicable standards.

B. Polyvinyl Chloride Pipe (PVC)

1. All PVC pipe shall have belled ends for push-on type jointing and shall conform to ASTM D 2241. The pipe shall have a Standard Dimension Ratio as indicated on the plans. Pipe shall be supplied in minimum lengths of 20 feet.
2. All fittings shall be of cast or ductile iron meeting the requirements of AWWA C110 or AWWA C153 (latest edition) with a minimum rated working pressure of 250 psi. Fittings shall be cement lined in accordance with AWWA C104. Fittings shall be furnished with a bituminous outside coating. Special adapters shall be provided as recommended by the manufacturer to adapt the PVC pipe to mechanical jointing with cast or ductile iron pipe, fittings, or valves.
3. Detection tape shall be provided over all PVC water mains.
4. Acceptance will be on the basis of the ENGINEER'S or OWNER'S inspection and the manufacturer's written certification that the pipe was manufactured and tested in accordance with the applicable standards, including the National Sanitation Foundation. Additionally, each piece of pipe shall be stamped "NSF Approved".

C. Polyvinyl Chloride Pipe (PVC) - (C-900)

1. All PVC pipe shall have belled ends for push-on type jointing and shall conform to AWWA C900, ductile iron pipe equivalent outside diameters. The pipe shall have a Dimension Ratio (DR) of **14** and shall be capable of withstanding a working pressure of **200** psi. Pipe shall be supplied in minimum lengths of 20 feet.

2. All fittings shall be of cast or ductile iron meeting the requirements of AWWA C110 or AWWA C153 with a minimum rated working pressure of **250** psi. Fittings shall be cement lined in accordance with AWWA C104. Fittings shall be furnished with a bituminous outside coating. Special adapters shall be provided, as recommended by the manufacturer, to adapt the PVC pipe to mechanical jointing with cast or ductile iron pipe, fittings or valves.
3. Detection tape shall be provided over all PVC water mains.
4. Acceptance will be on the basis of the ENGINEER'S inspection and the manufacturer's written certification that the pipe was manufactured and tested in accordance with the applicable standards, including the National Sanitation Foundation. Additionally, each piece of pipe shall be stamped "NSF Approved".

D. Polyethylene Pipe and Fittings

1. The CONTRACTOR shall furnish and install high density polyethylene pipe meeting these Specifications at the locations indicated on the Plans and in other sections of these Specifications.
  - a. High Density polyethylene pipe shall be manufactured and tested in conformance to the requirements of the latest revision of the American Society for Testing and Materials designation ASTM D-3350 "Polyethylene Plastic Pipe and Fittings Materials".
  - b. High density Polyethylene pipe shall have a grade designation of PE 3406 and a cell classification designation of P 355434C.
  - c. High density polyethylene pipe shall be joined by means of butt fusion.
  - d. Fittings for high density polyethylene pipe shall be manufactured of the same materials as the pipe. Unless otherwise indicated, all fittings shall be joined to the pipe by butt fusion techniques.

E. Ball and Socket River Crossing Pipe

1. Joints for ductile iron river crossing pipe shall be flexible, ball and socket type, boltless joints with rubber gaskets conforming to the ANSI specification for "Rubber-Gasket Joints for Ductile Iron Pressure Pipe and Fittings", A 21.11 (AWWA C11), Latest Revision.

**2.02 VALVES**

## A. Gate Valves (GV)

1. 3-Inches in Diameter and Smaller: Gate valves shall be bronze, heavy duty, rising stem, wedge type with screwed or union bonnet. Valve ends shall be threaded or solder type as appropriate. Valves shall have a minimum 200 psi working pressure for water (125 psi working pressure for steam). Valves shall be made in the U.S.A. Gate valves shall be equal to Crane No. 428 (threaded) or Crane No. 1334 (solder end).
2. 4-Inches Through 12-Inches in Diameter: Gate valves 4-inches through 12-inches shall be resilient wedge type conforming to the requirements of AWWA C509 rated for 200 psi working pressure.
  - a. Valves shall be provided with two O-ring stem seals with one O-ring located above and one O-ring below the stem collar. The area between the O-rings shall be filled with lubricant to provide lubrication to the thrust collar bearing surfaces each time the valve is operated. At least one anti-friction washer shall be utilized to further minimize operating torque. All seals between valve parts, such as body and bonnet, bonnet and bonnet cover, shall be flat gaskets or O-rings.
  - b. The valve gate shall be made of cast iron having a vulcanized, synthetic rubber coating, or a seat ring attached to the disc with retaining screws. Sliding of the rubber on the seating surfaces to compress the rubber will not be allowed. The design shall be such that compression-set of the rubber shall not affect the ability of the valve to seal when pressure is applied to either side of the gate. The sealing mechanism shall provide zero leakage at the water working pressure when installed with the line flow in either direction.
  - c. All internal ferrous surfaces shall be coated with epoxy to a minimum thickness of 4 mils. The epoxy shall be non-toxic, impart no taste to the water and shall conform to AWWA C550, latest revision.
  - d. Gate valves 4 through 12-inches shall be manufactured by American-Darling, Mueller or M & H Valve.

## B. Butterfly Valves (BV)

1. Butterfly valves shall be resilient seated, short body design, and shall be designed, manufactured, and tested in accordance with all requirements of AWWA C504, and as modified below. Valves shall be designed for a rated



working pressure of 250 psi. Class B, AWWA C504 Section 5.2 testing requirements are modified as follows:

- a. the leakage test shall be performed at a pressure of 250 psi;
  - b. the hydrostatic test shall be performed at a pressure of 500 psi; and
  - c. proof of design tests shall be performed and certification of such proof of design test shall be provided to the Engineer.
2. Valve bodies shall be ductile iron conforming to ASTM A 536, Grade 65-45-12 or ASTM A 126, Grade B cast iron. Shafts and shaft hardware shall be ASTM A 564, Type 630 stainless steel, machined and polished. Valve discs shall be ductile iron, ASTM A 536, Grade 65-45-12. The resilient valve seat shall be located either on the valve disc or in the valve body and shall be fully field adjustable and field replaceable.
  3. Valves shall be installed with the valve shafts horizontal. Valves and actuators shall have seals on all shafts and gaskets on valve actuator covers to prevent the entry of water. Actuator mounting brackets shall be totally enclosed and shall have gasket seals.
  4. Actuators
    - a. Valves shall be equipped with traveling nut, self-locking type actuators designed, manufactured and tested in accordance with AWWA C504. Actuators shall be capable of holding the disc in any position between full open and full closed without any movement or fluttering of the disc.
    - b. Actuators shall be furnished with fully adjustable mechanical stop-limiting devices. Actuators that utilize the sides of the actuator housing to limit disc travel are unacceptable.
    - c. Valve actuators shall be capable of withstanding a minimum of 450 foot pounds of input torque in either the open or closed position without damage.
  5. Operators: Valves for buried service shall have a nut type operator and shall be equipped with a valve box and stem extension, as required.
  6. Valve ends shall be mechanical joint type, except where flanged or restrained joint ends are shown. Flange joints shall meet the requirements of ANSI B16.1, Class 125. MJ Joint ends shall be restrained were called for using American MJ coupled joint or approved equal.

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7. Butterfly valves shall be manufactured by Mueller, M & H Valve, DeZurik, or Pratt.

C. Check Valves

1. Check valves shall be iron body, bronze mounted. They shall be outside weight and lever type (unless specified otherwise by the ENGINEER or indicated as such on the Plans) with bronze seat, hinge and guide busting. Unless otherwise indicated, check valves for interior use shall be flanged and those for exterior use shall be mechanical joint.

D. Blowoff Assemblies

1. Blowoff assemblies shall be installed in accordance with the details and Specifications at the locations shown on the Plans or as directed by the ENGINEER for the purpose of removing any obstacles or impurities from the main. The piping shall be the size indicated on the Plans PVC with a standard gate valve sized as indicated and 2 piece cast iron valve box and lid marked "Water". The lid shall be secured with a pentagon lock nut.

### **2.03 FIRE HYDRANTS (FH)**

- A. All fire hydrants shall conform to the requirements of AWWA C502 for 250 psi working pressure. Hydrants shall be the compression type, closing with line pressure. The valve opening shall not be less than [5-1/4-inches].
- B. In the event of a traffic accident, the hydrant barrel shall break away from the standpipe at a point above grade and in a manner which will prevent damage to the barrel and stem, preclude opening of the valve, and permit rapid and inexpensive restoration without digging or cutting off the water.
- C. The means for attaching the barrel to the standpipe shall permit facing the hydrant a minimum of eight different directions.
- D. Hydrants shall be fully bronze mounted with all working parts of bronze. Valve seat ring shall be bronze and shall screw into a bronze retainer.
- E. All working parts, including the seat ring shall be removable through the top without disturbing the barrel of the hydrant.
- F. The operating nut shall match those on the existing hydrants. The operating threads shall be totally enclosed in an operating chamber, separated from the

- hydrant barrel by a rubber O-ring stem seal and lubricated by a grease or an oil reservoir.
- G. Hydrant shall be a non-freezing design and be provided with a simple, positive, and automatic drain which shall be fully closed whenever the main valve is opened.
  - H. Hose and pumper connections shall be breech-locked, pinned, or threaded and pinned to seal them into the hydrant barrel. Each hydrant shall have two 2-1/2-inch hose connections and one 4-1/2-inch pumper connection, all with National Standard threads and each equipped with cap and non-kinking chain.
  - I. Hydrants shall be furnished with a mechanical joint connection to the spigot of the 6-inch hydrant lead.
  - J. Minimum depth of bury shall be 4.5 feet. Provide extension section where necessary for proper vertical installation and in accordance with manufacturer's recommendations.
  - K. All outside surfaces of the barrel above grade shall be painted with enamel equal to Koppers Glamortex 501 in a color to be selected by the Owner.
  - L. Hydrants shall be traffic model and shall be Mueller Super Centurion or approved equal.

## **2.04 VALVE BOXES (VB) AND EXTENSION STEMS**

- A. All valves shall be equipped with valve boxes. The valve boxes shall be cast iron two-piece screw type with drop covers. Valve boxes shall have a 5.25-inch inside diameter. Valve box covers shall weigh a minimum of 13 pounds. The valve boxes shall be adjustable to 6-inches up or down from the nominal required cover over the pipe. Valve boxes shall be of sufficient length that bottom flange of the lower belled portion of the box is below the valve operating nut. Ductile or cast iron extensions shall be provided as necessary. Covers shall have "WATER VALVE" or "WATER" cast into them. Valve boxes shall be manufactured in the United States.
- B. All valves shall be furnished with extension stems, as necessary, to bring the operating nut to within 30-inches of the top of the valve box. Connection to the valve shall be with a wrench nut coupling and a set screw to secure the coupling to the valve's operating nut. The coupling and square wrench nut shall be welded to the extension stem. Extension stems shall be equal to Mueller A-26441 or M & H Valve Style 3801.

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- C. All Valve Boxes shall be installed with Concrete Collars as Indicated on the Detail Sheet.

## **2.05 VALVE MARKERS (VM)**

The CONTRACTOR shall provide a concrete valve marker as detailed on the Drawings for each valve installed. Valve markers shall be stamped "Water".

## **2.06 TAPPING SLEEVES AND VALVES (TS&V)**

Tapping sleeves shall be cast or ductile iron of the split-sleeve, mechanical joint type. The CONTRACTOR shall be responsible for determining the outside diameter of the pipe to be connected to prior to ordering the sleeve. Valves shall be gate valves furnished in accordance with the specifications shown above, with flanged connection to the tapping sleeve and mechanical joint connection to the branch pipe. The tapping sleeve and valve shall be supplied by the valve manufacturer. Tapping sleeves shall be equal to American-Darling, Mueller or M & H Valve.

## **2.07 TAPPING SADDLES**

Tapping saddles shall be brass body type with O-ring gasket. Tapping saddles shall be equal to Mueller Series H-134 Service Clamp.

## **2.08 CORPORATION COCKS AND CURB STOPS**

Corporation cocks and curb stops shall be ground key type, shall be made of bronze conforming to ASTM B 61 or B 62, and shall be suitable for the working pressure of the system. Ends shall be suitable for flared tube compression type joint. Threaded ends for inlet and outlet of corporation cocks shall conform to AWWA C800; coupling nut for connection to flared copper tubing shall conform to ANSI B16.26. Corporation cocks and curb stops shall be manufactured by Mueller or Ford or approved equal.

## **2.09 AIR VALVES**

- A. Air Release Valves: Air release valves shall be one of the following types:
  - 1. The air release valve shall automatically release air accumulations from the pipeline due to the action of the float. When the air valve body fills with air, the float falls freely from the orifice to allow the air to escape to the atmosphere. When all the air has been exhausted from the valve body, the float will be buoyed up to seat against the orifice and prevent water from being exhausted from the valve. The valve body and cover shall be

- constructed of cast iron (ASTM A 126-B). A synthetic orifice button shall be affixed to the valve cover to provide a non-corrosive seat for the float. The float shall be constructed of stainless steel. A resilient, Buna-N seat shall be attached to the float for drop-tight closure. The float shall be free floating within the valve body. Valve orifice size shall be as shown on the Drawings.
2. The air release valve shall automatically release air accumulations from the pipeline due to the action of the float and lever mechanism. When the air valve body fills with air, the float falls. Through the leverage mechanism, this causes the resilient seat to open the orifice and allow the air to escape to the atmosphere. When all the air has been exhausted from the valve body, the float will be buoyed up. Through the leverage mechanism, this will cause the resilient seat to close the orifice, preventing water from being exhausted from the valve. The valve body and cover shall be constructed of cast iron (ASTM A 126-B). The float shall be constructed of stainless steel and attached to a stainless steel lever mechanism. A resilient, Buna-N seat shall be attached to the lever mechanism for drop-tight closure. Valve orifice size shall be as shown on the Drawings.
- B. Air/Vacuum Valve: The air/vacuum valve shall discharge large amounts of air as the pipeline fills and allow air to enter the pipeline as it drains or in the event of vacuum conditions. The valve shall operate by means of a non-collapsible stainless steel float which seals an orifice. As air enters the valve the float shall drop from the orifice and allow the air to escape. As water rises in the valve, the float will again seal the orifice. The valve will be of such design that the float cannot blow shut at any air velocity. All working parts shall be of stainless steel. The inside of the valve body shall be epoxy coated. Valve inlet size shall be as shown on the Drawings.
- C. Combination Air Valves: Combination air valves shall combine the features of an air release valve and an air/vacuum valve and shall be of one of the following types:
1. Valve shall consist of an air/vacuum valve described in paragraph B. above, with an air release valve described in A. above tapped into its body. The valve shall be of two-piece body design with an isolation gate valve separating the two valves.
  2. Valve shall be single body, double orifice, allowing large volumes of air to escape out the larger diameter air and vacuum orifice when filling a pipeline and closes watertight when the liquid enters the valve. During large orifice closure, the smaller diameter air release orifice will open to allow small pockets of air to escape automatically and independently of the large orifice. The large air/vacuum orifice shall also allow large volumes of air to enter

through the orifice during pipeline drainage to break the vacuum. The Buna-N seats must be fastened to the valve, without distortion, for drop-tight shut-off. The float shall be stainless steel. Valve sizes shall be as shown on the Drawings.

- D. Surge Check Valve: Where shown on the Drawings or specified, provide a surge check valve on the inlet of the air/vacuum valve. The surge check valve shall be normally open, spring loaded valve consisting of a body, seat and plug bolted to the inlet of the air/vacuum valve. The surge check shall operate on the interphase between the kinetic energy and relative velocity flows of air and water, allowing air to pass through but water shall close the surge check, reducing the rate of water flow by means of throttling orifices in the plug to prevent shock closure of the air/vacuum valve. The surge check orifices must be an adjustable type to suit operating conditions in the field.
- E. All air valves and accessories shall be supplied by a single manufacturer and shall be G.A. Industries, APCO, Crispin or Val-Matic.

## **2.10 METER SETTERS**

The meter setter shall be a tandem coppersetter as shown on the standard detail drawings with 3/4" double purpose ends and be 15" high with padlock wing. It shall be all purpose, designed for 5/8" x 3/4" meter and be of sufficient height to raise meters above the bottom of the meter box. The meter setter shall be Ford, or equal. Meter setters shall have an inverted key inlet valve.

Setters shall be installed so that the meters are centered in the meter box.

The water service line shall be extended a minimum of 18" beyond the meter box on the customer end. The end of the extension shall be capped or plugged to prevent entry of foreign material until the connection is made.

## **2.11 WATER METERS**

Water meter shall be cold water displacement type meeting all requirement of AWWA C700-77. The meter sizes shall be 5/8-inch x 3/4-inch meters for 3/4" service rated at a flow of 20 gpm and 1" meters for 1" service rated at a flow of 50 gpm. Meters shall be of frost-proof design and be rotating disk type. The meters shall be equipped with a straight-reading register recording in U.S. Gallons hermetically sealed to prevent fogging and with a removable corrosion resistant strainer screen between the outer case and measuring chamber. Register

shall be equipped with a device to afford capability for accurately testing each meter according to AWWA Standards. The body case shall have the manufacturer's serial number imprinted thereon and have raised markings to indicate the direction of flow.

**2.12 HYDRANT TEES (Not Used)**

**2.13 ANCHOR COUPLINGS (Not Used)**

**2.14 VALVE KEYS**

The CONTRACTOR shall provide to the OWNER one valve key for every five valves provided, but no more than three and not less than one valve key. Valve keys shall be 72-inches long with a tee handle and a 2-inch square wrench nut. Valve keys shall be furnished by the valve manufacturer. Valve keys shall be equal to Mueller A-24610 or ACIPCO No. 1303.

**2.15 CONCRETE**

Concrete shall have a compressive strength of not less than 3000 psi, with not less than 5.5 bags of cement per cubic yard and a slump between 3 and 5-inches. For job mixed concrete, submit the concrete mix design for approval by the Engineer. Ready-mixed concrete shall be mixed and transported in accordance with ASTM C 94. Reinforcing steel shall conform to the requirements of ASTM A 615, Grade 60.

**PART 3 EXECUTION**

**3.01 EXISTING UTILITIES AND OBSTRUCTIONS**

- A. The Drawings indicate utilities or obstructions that are known to exist according to the best information available to the OWNER. The CONTRACTOR shall call the agencies or departments that own and/or operate utilities in the vicinity of the construction work site at least 72 hours (three business days) prior to construction to verify the location of the existing utilities.
- B. Existing Utility Location: The following steps shall be exercised to avoid interruption of existing utility service.
  1. Provide the required notice to the utility owners and allow them to locate their facilities. Field utility locations are valid for only 10 days after original notice. The CONTRACTOR shall ensure, at the time of any excavation, that a valid utility location exists at the point of excavation.

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2. Expose the facility, for a distance of at least 200 feet in advance of pipeline construction, to verify its true location and grade. Repair, or have repaired, any damage to utilities resulting from locating or exposing their true location.
3. Avoid utility damage and interruption by protection with means or methods recommended by the utility owner.
4. Maintain a log identifying when phone calls were made, who was called, area for which utility relocation was requested and work order number issued, if any. The CONTRACTOR shall provide the ENGINEER an updated copy of the log bi-weekly, or more frequently if required.

C. Conflict with Existing Utilities

1. Horizontal Conflict: Horizontal conflict shall be defined as when the actual horizontal separation between a utility, main, or service and the proposed water main does not permit safe installation of the water main by the use of sheeting, shoring, tying-back, supporting, or temporarily suspending service of the parallel or crossing facility. The CONTRACTOR may change the proposed alignment of the water main to avoid horizontal conflicts if the new alignment remains within the available right-of-way or easement, complies with regulatory agency requirements and after a written request to and subsequent approval by the ENGINEER or OWNER. Where such relocation of the water main is denied by the ENGINEER or OWNER, the CONTRACTOR shall arrange to have the utility, main, or service relocated.
2. Vertical Conflict: Vertical conflict shall be defined as when the actual vertical separation between a utility, main, or service and the proposed water main does not permit the crossing without immediate or potential future damage to the utility, main, service, or the water main. The CONTRACTOR may change the proposed grade of the water main to avoid vertical conflicts if the changed grade maintains adequate cover and complies with regulatory agencies requirements after written request to and subsequent approval by the ENGINEER or OWNER. Where such relocation of the water main is denied by the ENGINEER or OWNER, the CONTRACTOR shall arrange to have the utility, main, or service relocated.

D. Electronic Locator: Have available at all times an electronic pipe locator and a magnetic locator, in good working order, to aid in locating existing pipe lines or other obstructions.

E. Water and Sewer Separation



1. Water mains should maintain a minimum 10 foot edge-to-edge separation from sewer lines, whether gravity or pressure. If the main cannot be installed in the prescribed easement or right-of-way and provide the 10 foot separation, the separation may be reduced, provided the bottom of the water main is a minimum of 18-inches above the top of the sewer. Should neither of these two separation criteria be possible, the water main shall be installed below the sewer with a minimum vertical separation of 18-inches.
2. The water main, when installed below the sewer, shall be encased in concrete with a minimum 6-inch concrete depth to the first joint in each direction. Where water mains cross the sewer, the pipe joint adjacent to the pipe crossing the sewer shall be cut to provide maximum separation of the pipe joints from the sewer.
3. No water main shall pass through, or come in contact with, any part of a sanitary sewer manhole.

### **3.02 CONSTRUCTION ALONG HIGHWAYS, STREETS AND ROADWAYS**

- A. Install pipe lines and appurtenances along highways, streets and roadways in accordance with the applicable regulations of, and permits issued by, the Department of Transportation, local county and city with reference to construction operations, safety, traffic control, road maintenance and repair.
- B. Traffic Control
  1. The CONTRACTOR shall provide, erect and maintain all necessary barricades, suitable and sufficient lights and other traffic control devices; provide qualified flagmen where necessary to direct traffic; take all necessary precautions for the protection of the work and the safety of the public.
  2. Construction traffic control devices and their installation shall be in accordance with the current Manual On Uniform Traffic Control Devices for Streets and Highways and the Department of Highways Specifications, latest edition.
  3. Placement and removal of construction traffic control devices shall be coordinated with the Department of Transportation, local county and city, a minimum of 48 hours in advance of the activity.
  4. Placement of construction traffic control devices shall be scheduled ahead of associated construction activities. Construction time in street right-of-way shall be conducted to minimize the length of time traffic is disrupted.

Construction traffic control devices shall be removed immediately following their useful purpose. Traffic control devices used intermittently, such as "Flagmen Ahead", shall be removed and replaced when needed.

5. Existing traffic control devices within the construction work zone shall be protected from damage. Traffic control devices requiring temporary relocation shall be located as near as possible to their original vertical and horizontal locations. Original locations shall be measured from reference points and recorded in a log prior to relocation. Temporary locations shall provide the same visibility to affected traffic as the original location. Relocated traffic control devices shall be reinstalled in their original locations as soon as practical following construction.
6. Construction traffic control devices shall be maintained in good repair and shall be clean and visible to affected traffic for daytime and nighttime operation. Traffic control devices affected by the construction work zone shall be inspected daily.
7. Construction warning signs shall be black legend on an orange background. Regulatory signs shall be black legend on a white background. Construction sign panels shall meet the minimum reflective requirements of the Department of Transportation, local county and city. Sign panels shall be of durable materials capable of maintaining their color, reflective character and legibility during the period of construction.
8. Channelization devices shall be positioned preceding an obstruction at a taper length as required by the current Manual On Uniform Traffic Control Devices for Streets and Highways, as appropriate for the speed limit at that location. Channelization devices shall be patrolled to insure that they are maintained in the proper position throughout their period of use.

#### C. Construction Operations

1. Perform all work along highways, streets and roadways to minimize interference with traffic.
2. Stripping: Where the pipe line is laid along road right-of-way, strip and stockpile all sod, topsoil and other material suitable for right-of-way restoration.
3. Trenching, Laying and Backfilling: Do not open the trench any further ahead of pipe laying operations than is necessary. Backfill and remove excess material immediately behind laying operations. Complete excavation and backfill for any portion of the trench in the same day.

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4. Shaping: Reshape damaged slopes, side ditches, and ditch lines immediately after completing backfilling operations. Replace topsoil, sod and any other materials removed from shoulders.
  5. Construction operations shall be limited to 400 feet along areas within KYDOT jurisdiction, including clean-up and utility exploration.
- D. Excavated Materials: Do not place excavated material along highways, streets and roadways in a manner which obstructs traffic. Sweep all scattered excavated material off of the pavement in a timely manner.
- E. Drainage Structures: Keep all side ditches, culverts, cross drains, and other drainage structures clear of excavated material. Care shall be taken to provide positive drainage to avoid ponding or concentration of runoff.
1. The CONTRACTOR shall make provisions for handling all flows in existing creeks, ditches, sewers and trenches by pipes, flumes or other approved methods at all times when his operations would, in any way, interfere with the natural functioning of said creeks, ditches, sewers and drains. The CONTRACTOR shall at all times during construction provide and maintain sufficient equipment for the disposal of all water which enters the excavation, both in open cut trenches and in tunnels, to render such excavation firm and dry, until the structures to be built thereon are completed.
- F. Landscaping Features: Landscaping features shall include, but are not necessarily limited to: fences; property corners; cultivated trees and shrubbery; manmade improvements; subdivision and other signs within the right-of-way and easement. The CONTRACTOR shall take extreme care in moving landscape features and promptly re-establishing these features.
- G. Maintaining Highways, Streets, Roadways and Driveways
1. Maintain streets, highways, roadways and driveways in suitable condition for movement of traffic until completion and final acceptance of the Work. All excavation shall be conducted in a manner to the last interruption to traffic.
  2. During the time period between pavement removal and completing permanent pavement replacement, maintain highways, streets and roadways by the use of steel running plates. Running plate edges shall have asphalt placed around their periphery to minimize vehicular impact. The backfill above the pipe shall be compacted as specified elsewhere up to the existing pavement surface to provide support for the steel running plates.

3. Furnish a road grader or front-end loader for maintaining highways, streets, and roadways. The grader or front-end loader shall be available at all times.
4. Immediately repair all driveways that are cut or damaged. Maintain them in a suitable condition for use until completion and final acceptance of the Work. Driveways and other private and public access routes shall not be kept blocked or closed by the CONTRACTOR for more than a reasonable period of time without prior written approval from the property owner or controlling authority.
5. Maintenance of all traffic shall be in accordance with any requirements of the local road department(s) and/or the Kentucky Department of Transportation. It is the responsibility of the CONTRACTOR to coordinate all work with and notify the above-named agencies, and to provide all necessary signs, barricades, lights, flagmen, and other items for maintenance of traffic.

Public travel shall be maintained, unrestricted, wherever and whenever possible. Detours shall be provided when so directed by the appropriate agency. Adequate precautions shall be taken to provide for the safety of both vehicular and pedestrian traffic. Emergency vehicles shall be provided access to construction area at all times.

Unless specifically directed otherwise by the ENGINEER, not more than five hundred (500') feet of trench shall be opened ahead of the pipe laying, and not more than five hundred (500') feet of open ditch shall be left behind the pipe laying. All barricades, lanterns, watchmen, and other such signs and signals as may be necessary to warn the public of the dangers in connection with open trenches, excavations and other obstructions, shall be provided by and at the expense of the CONTRACTOR.

When so required, or when directed by the ENGINEER, only one-half (1/2) of the street crossing and road crossings shall be excavated before placing temporary bridges over the side excavated for the convenience of the traveling public.

All backfilled ditches shall be maintained in such manner that they will offer no hazard to the traveling public and the property owners abutting the improvements shall be taken into consideration. All public or private drives shall be promptly backfilled or bridges at the direction of the ENGINEER. Excavated materials shall be disposed of so as to cause the least interference, and in every case the deposition of excavated materials shall be satisfactory to the ENGINEER.

#### H. Property Protection

1. Extreme care shall be taken to protect trees, fences, poles, crops and all other property from damage unless their removal is authorized by the ENGINEER. Any damaged property shall be restored to as good or better than original condition and shall meet with the approval of the ENGINEER and OWNER.
2. The CONTRACTOR has the right to fully utilize the easement unless specifically stated otherwise on the plans or by the ENGINEER. If any irreplaceable trees, fences, poles or crops, such as tobacco, corn, soy beans and such (excluding pasture land), occur on the easement the CONTRACTOR shall obtain the ENGINEER's and OWNER's approval prior to removing or otherwise causing damage to any of these items.
3. Beyond the limits of the easement the CONTRACTOR shall be responsible for any damage caused by his operations and/or his personnel.

### **3.03 PIPE DISTRIBUTION**

- A. Pipe shall be distributed and placed in such a manner that will not interfere with traffic.
- B. No pipe shall be strung further along the route than 1000 feet beyond the area in which the CONTRACTOR is actually working without written permission from the OWNER.
- C. No street or roadway may be closed for unloading of pipe without first obtaining permission from the proper authorities. The CONTRACTOR shall furnish and maintain proper warning signs and obstruction lights for the protection of traffic along highways, streets and roadways upon which pipe is distributed.
- D. No distributed pipe shall be placed inside drainage ditches.
- E. Distributed pipe shall be placed as far as possible from the roadway pavement, but no closer than five feet from the roadway pavement, as measured edge-to-edge.

### **3.04 LOCATION AND GRADE**

- A. The Drawings show the alignment of the water main and the location of valves, hydrants and other appurtenances.
- B. Construction Staking
  1. The base lines for locating the principal components of the work and a bench marks adjacent to the work are shown on the Drawings if Available. Base lines shall be defined as the line to which the location of the water main is

referenced, i.e., edge of pavement, road centerline, property line, right-of-way or survey line. The CONTRACTOR shall be responsible for performing all survey work required for constructing the water main, including the establishment of base lines and any detail surveys needed for construction. This work shall include the staking out of permanent and temporary easements to insure that the CONTRACTOR is not deviating from the designated easements.

2. The level of detail of survey required shall be that which the correct location of the water main can be established for construction and verified by the ENGINEER or OWNER. Where the location of components of the water main, e.g. tunnels and fittings, are not dimensioned, the establishment on the location of these components shall be based upon scaling these locations from the Drawings with relation to readily identifiable land marks, e.g., survey reference points, power poles, manholes, etc.

C. Reference Points

1. The CONTRACTOR shall take all precautions necessary, which includes, but is not necessarily limited to, installing reference points, in order to protect and preserve the centerline or baseline established by the ENGINEER.
2. Reference points shall be placed, at or no more than three feet, from the outside of the construction easement or right-of-way. The location of the reference points shall be recorded in a log with a copy provided to the ENGINEER and OWNER for use, prior to verifying reference point locations. Distances between reference points and the manhole centerlines shall be accurately measured to 0.01 foot.
3. The CONTRACTOR shall give the ENGINEER reasonable notice that reference points are set. The reference point locations must be verified by the ENGINEER prior to commencing clearing and grubbing operations.

D. After the CONTRACTOR locates and marks the water main centerline or baseline, the CONTRACTOR shall perform clearing and grubbing.

E. Construction shall begin at a connection location and proceed without interruption. Multiple construction sites shall not be permitted without written authorization from the ENGINEER for each site.

F. The CONTRACTOR shall be responsible for any damage done to reference points, base lines, center lines and temporary bench marks, and shall be responsible for the cost of re-establishment of reference points, base lines, center lines and temporary bench marks as a result of the operations.

**3.05 LAYING AND JOINTING PIPE AND ACCESSORIES**

- A. Lay all pipe and fittings to accurately conform to the lines and grades established by the ENGINEER.
- B. Pipe Installation
  - 1. Proper implements, tools and facilities shall be provided for the safe performance of the Work. All pipe, fittings, valves and hydrants shall be lowered carefully into the trench by means of slings, ropes or other suitable tools or equipment in such a manner as to prevent damage to water main materials and protective coatings and linings. Under no circumstances shall water main materials be dropped or dumped into the trench.
  - 2. All pipe, fittings, valves, hydrants and other appurtenances shall be examined carefully for damage and other defects immediately before installation. Defective materials shall be marked and held for inspection by the ENGINEER, who may prescribe corrective repairs or reject the materials.
  - 3. All lumps, blisters and excess coating shall be removed from the socket and plain ends of each pipe, and the outside of the plain end and the inside of the bell shall be wiped clean and dry and free from dirt, sand, grit or any foreign materials before the pipe is laid. No pipe containing dirt shall be laid.
  - 4. Foreign material shall be prevented from entering the pipe while it is being placed in the trench. No debris, tools, clothing or other materials shall be placed in the pipe at any time.
  - 5. As each length of pipe is placed in the trench, the joint shall be assembled and the pipe brought to correct line and grade. The pipe shall be secured in place with approved backfill material.
  - 6. It is not mandatory to lay pipe with the bells facing the direction in which work is progressing.
  - 7. Applying pressure to the top of the pipe, such as with a backhoe bucket, to lower the pipe to the proper elevation or grade, shall not be permitted.
  - 8. Detection tape shall be buried 4 to 10-inches deep. Should detection tape need to be installed deeper, the CONTRACTOR shall provide 3-inch wide tape. In no case shall detection tape be buried greater than 20-inches from the finish grade surface.

C. Alignment and Gradient

1. Lay pipe straight in alignment and gradient or follow true curves as nearly as practicable. Do not deflect any joint more than the maximum deflection recommended by the manufacturer.
2. Maintain a transit, level and accessories on the job to lay out angles and ensure that deflection allowances are not exceeded.

D. Expediting of Work: Excavate, lay the pipe, and backfill as closely together as possible. Do not leave unjointed pipe in the trench overnight. Backfill and compact the trench as soon as possible after laying and jointing is completed. Cover the exposed end of the installed pipe each day at the close of work and at all other times when work is not in progress. If necessary to backfill over the end of an uncompleted pipe or accessory, close the end with a suitable plug, either push-on, mechanical joint, restrained joint or as approved by the ENGINEER.

E. Joint Assembly

1. Push-on, mechanical, flange and restrained type joints shall be assembled in accordance with the manufacturer's recommendations.
2. The CONTRACTOR shall inspect each pipe joint within 200 feet on either side of main line valves to insure 100 percent seating of the pipe spigot, except as noted otherwise.
3. Each restrained joint shall be inspected by the CONTRACTOR to ensure that it has been "homed" 100 percent.
4. The CONTRACTOR shall internally inspect each pipe joint to insure proper assembly for pipe 24-inches in diameter and larger after the pipe has been brought to final alignment.

F. Cutting Pipe: Cut ductile iron pipe using an abrasive wheel saw. Cut PVC pipe using a suitable saw; remove all burrs and smooth the end before jointing. The CONTRACTOR shall cut the pipe and bevel the end, as necessary, to provide the correct length of pipe necessary for installing the fittings, valves, accessories and closure pieces in the correct location. Only push-on or mechanical joint pipe shall be cut.

G. Polyethylene Encasement: Installation shall be in accordance with AWWA C105 and the manufacturer's instructions. All ends shall be securely closed with tape and all damaged areas shall be completely repaired to the satisfaction of the Engineer.



## H. Valve and Fitting Installation

1. Prior to installation, valves shall be inspected for direction of opening, number of turns to open, freedom of operation, tightness of pressure-containing bolting and test plugs, cleanliness of valve ports and especially seating surfaces, handling damage and cracks. Defective valves shall be corrected or held for inspection by the ENGINEER. Valves shall be closed before being installed.
2. Valves, fittings, plugs and caps shall be set and joined to the pipe in the manner specified in this Section for cleaning, laying and joining pipe, except that 12-inch and larger valves shall be provided with special support, such as treated timbers, crushed stone, concrete pads or a sufficiently tamped trench bottom so that the pipe will not be required to support the weight of the valve. Valves shall be installed in the closed position.
3. A valve box shall be provided on each underground valve. They shall be carefully set, centered exactly over the operating nut and truly plumbed. The valve box shall not transmit shock or stress to the valve. The bottom flange of the lower belled portion of the box shall be placed below the valve operating nut. This flange shall be set on brick, so arranged that the weight of the valve box and superimposed loads will bear on the base and not on the valve or pipe. Extension stems shall be installed where depth of bury places the operating nut in excess of 30-inches beneath finished grade so as to set the top of the operating nut 30-inches below finished grade. The valve box cover shall be flush with the surface of the finished area or such other level as directed by the ENGINEER.
4. In no case shall valves be used to bring misaligned pipe into alignment during installation. Pipe shall be supported in such a manner as to prevent stress on the valve.
5. A valve marker shall be provided for each underground valve. Unless otherwise detailed on the Drawings or directed by the ENGINEER, valve markers shall be installed 6-inches inside the right-of-way or easement.

## I. Hydrant Installation

1. Prior to installation, inspect all hydrants for direction of opening, nozzle threading, operating nut and cap nut dimensions, tightness of pressure-containing bolting, cleanliness of inlet elbow, handling damage and cracks. Defective hydrants shall be corrected or held for inspection by the ENGINEER.

2. All hydrants shall stand plumb and shall have their nozzles parallel with or at right angles to the roadway, with pumper nozzle facing the roadway, except that hydrants having two-hose nozzles 90 degrees apart shall be set with each nozzle facing the roadway at an angle of 45 degrees.
3. Hydrants shall be set to the established grade, with the centerline of the lowest nozzle at least 12-inches above the ground or as directed by the ENGINEER.
4. Each hydrant shall be connected to the main with a 6-inch branch controlled by an independent 6-inch valve. When a hydrant is set in soil that is pervious, drainage shall be provided at the base of the hydrant by placing coarse gravel or crushed stone mixed with coarse sand from the bottom of the trench to at least 6-inches above the drain port opening in the hydrant to a distance of 12-inches around the elbow.
5. When a hydrant is set in clay or other impervious soil, a drainage pit 2 x 2 x 2 feet shall be excavated below each hydrant and filled with coarse gravel or crushed stone mixed with coarse sand under and around the elbow of the hydrant and to a level of 6-inches above the drain port.
6. Hydrants shall be located as shown on the Drawings or as directed by the ENGINEER. In the case of hydrants that are intended to fail at the ground-line joint upon vehicle impact, specific care must be taken to provide adequate soil resistance to avoid transmitting shock moment to the lower barrel and inlet connection. In loose or poor load bearing soil, this may be accomplished by pouring a concrete collar approximately 6-inches thick to a diameter of 24-inches at or near the ground line around the hydrant barrel.

### **3.06 CONNECTIONS TO WATER MAINS**

- A. Make connections to existing pipe lines with tapping sleeves and valves, unless specifically shown otherwise on the Drawings.
- B. Location: Before laying pipe, locate the points of connection to existing water mains and uncover as necessary for the ENGINEER or OWNER to confirm the nature of the connection to be made.
- C. Interruption of Services: Make connections to existing water mains only when system operations permit. Operate existing valves only with the specific authorization and direct supervision of the Owner.
- D. Tapping Saddles and Tapping Sleeves

1. Holes in the new pipe shall be machine cut, either in the field or at the factory. No torch cutting of holes shall be permitted.
  2. Prior to attaching the saddle or sleeve, the pipe shall be thoroughly cleaned, utilizing a brush and rag, as required.
  3. Before performing field machine cut, the watertightness of the saddle or sleeve assembly shall be pressure tested. The interior of the assembly shall be filled with water. An air compressor shall be attached, which will induce a test pressure as specified in this Section. No leakage shall be permitted for a period of five minutes.
  4. After attaching the saddle or sleeve to an existing main, but prior to making the tap, the interior of the assembly shall be disinfected. All surfaces to be exposed to potable water shall be swabbed or sprayed with a one percent hypochlorite solution.
- E. Connections Using Solid Sleeves: Where connections are shown on the Drawings using solid sleeves, the CONTRACTOR shall furnish materials and labor necessary to make the connection to the existing pipe line.
- F. Connections Using Couplings: Where connections are shown on the Drawings using couplings, the CONTRACTOR shall furnish materials and labor necessary to make the connection to the existing pipe line, including all necessary cutting, plugging and backfill.

### **3.07 VALVE BOX ADJUSTMENT (Not Used)**

### **3.08 THRUST RESTRAINT**

- A. Provide restraint at all points where hydraulic thrust may develop.
- B. Concrete Blocking
1. Provide concrete blocking for all bends, tees, valves, and other points where thrust may develop, except where other exclusive means of thrust restraint are specifically shown on the Drawings.
  2. Concrete shall be as specified in this Section.
  3. Form and pour concrete blocking at fittings as shown on the Drawings and as directed by the ENGINEER. Pour blocking against undisturbed earth. Increase dimensions when required by over excavation.

### 3.09 INSPECTION AND TESTING

#### A. Pressure and Leakage Test

1. All sections of the water main subject to internal pressure shall be pressure tested in accordance with AWWA C600. A section of main will be considered ready for testing after completion of all thrust restraint and backfilling.
2. Each segment of water main between main valves shall be tested individually.
3. Test Preparation
  - a. For water mains less than 24-inches in diameter, flush sections thoroughly at flow velocities, greater than 2.5 feet per second, adequate to remove debris from pipe and valve seats. For water mains 24-inches in diameter and larger, the main shall be carefully swept clean, and mopped if directed by the ENGINEER. Partially open valves to allow the water to flush the valve seat.
  - b. Partially operate valves and hydrants to clean out seats.
  - c. Provide temporary blocking, bulkheads, flanges and plugs as necessary, to assure all new pipe, valves and appurtenances will be pressure tested.
  - d. Before applying test pressure, air shall be completely expelled from the pipeline and all appurtenances. Insert corporation cocks at highpoints to expel air as main is filled with water as necessary to supplement automatic air valves. Corporation stops shall be constructed as detailed on the Drawings with a meter box.
  - e. Fill pipeline slowly with water. Provide a suitable pump with an accurate water meter to pump the line to the specified pressure.
  - f. The differential pressure across a valve or hydrant shall equal the maximum possible, but not exceed the rated working pressure. Where necessary, provide temporary backpressure to meet the differential pressure restrictions.
  - g. Valves shall not be operated in either the opening or closing direction at differential pressures above the rated pressure.

4. Test Pressure: Test the pipeline at 50 psi above the rated working pressure measured at the lowest point for at least two hours. Maintain the test pressure within 5 psi of the specified test pressure for the test duration. Should the pressure drop more than 5 psi at any time during the test period, the pressure shall be restored to the specified test pressure. Provide an accurate pressure gage with graduation not greater than 5 psi.
5. Leakage
  - a. Leakage shall be defined as the sum of the quantity of water that must be pumped into the test section, to maintain pressure within 5 psi of the specified test pressure for the test duration plus water required to return line to test pressure at the end of the test. Leakage shall be the total cumulative amount measured on a water meter.
  - b. The OWNER assumes no responsibility for leakage occurring through existing valves.
6. Test Results: No test section shall be accepted if the leakage exceeds the limits determined by the following formula:

$$L = \frac{SD(P)^{1/2}}{133,200}$$

Where:	L	=	allowable leakage, in gallons per hour
	S	=	length of pipe tested, in feet
	D	=	nominal diameter of the pipe, in inches
	P	=	average test pressure during the leakage test, in pounds per square inch (gauge)

As determined under Section 4 of AWWA C600.

If the water main section being tested contains lengths of various pipe diameters, the allowable leakage shall be the sum of the computed leakage for each diameter. The leakage test shall be repeated until the test section is accepted. All visible leaks shall be repaired regardless of leakage test results.

7. Completion: After a pipeline section has been accepted, relieve test pressure. Record type, size and location of all outlets on record drawings.

### 3.10 DISINFECTING PIPELINE

- A. After successfully pressure testing each pipeline section, disinfect in accordance with AWWA C651 for the continuous-feed method and these Specifications.

- B. Specialty Contractor: Disinfection shall be performed by an approved specialty contractor. Before disinfection is performed, the CONTRACTOR shall submit a written procedure for approval before being permitted to proceed with the disinfection. This plan shall also include the steps to be taken for the neutralization of the chlorinated water.
- C. Chlorination
  - 1. Apply chlorine solution to achieve a concentration of at least 50 milligrams per liter free chlorine in new line. Retain chlorinated water for 24 hours.
  - 2. Chlorine concentration shall be recorded at every outlet along the line at the beginning and end of the 24 hour period.
  - 3. After 24 hours, all samples of water shall contain at least 25 milligrams per liter free chlorine. Re-chlorinate if required results are not obtained on all samples.
- D. Disposal of Chlorinated Water: Reduce chlorine residual of disinfection water to less than one milligram per liter if discharged directly to a body of water or to less than two milligrams per liter if discharged onto the ground prior to disposal. Treat water with sulfur dioxide or other reducing chemicals to neutralize chlorine residual. Flush all lines until residual is equal to existing system.
- E. Bacteriological Testing: After final flushing and before the main is placed into service, the CONTRACTOR shall assist the OWNER in collecting samples from the line to have tested for bacteriological quality. Testing shall be performed by the OWNER at a laboratory certified by the State of Kentucky. Re-chlorinate lines until the required results are obtained.

### **3.11 PROTECTION AND RESTORATION OF WORK AREA**

- A. General: Return all items and all areas disturbed, directly or indirectly by work under these Specifications, to their original condition or better, as quickly as possible after work is started.
  - 1. The CONTRACTOR shall plan, coordinate, and prosecute the work such that disruption to personal property and business is held to a practical minimum.
  - 2. All construction areas abutting lawns and yards of residential or commercial property shall be restored promptly. Backfilling of underground facilities, ditches, and disturbed areas shall be accomplished on a daily basis as work is completed. Finishing, dressing, and grassing shall be accomplished immediately thereafter, as a continuous operation within each area being

constructed and with emphasis placed on completing each individual yard or business frontage. Care shall be taken to provide positive drainage to avoid ponding or concentration of runoff.

3. Handwork, including raking and smoothing, shall be required to ensure that the removal of roots, sticks, rocks, and other debris is removed in order to provide a neat and pleasing appearance.
  4. The Department of Transportation's engineer shall be authorized to stop all work by the CONTRACTOR when restoration and cleanup are unsatisfactory and to require appropriate remedial measures.
- B. Man-Made Improvements: Protect, or remove and replace with the ENGINEER'S approval, all fences, walkways, mail boxes, pipe lines, drain culverts, power and telephone lines and cables, property pins and other improvements that may be encountered in the Work.
- C. Cultivated Growth: Do not disturb cultivated trees or shrubbery unless approved by the ENGINEER. Any such trees or shrubbery which must be removed shall be heeled in and replanted under the direction of an experienced nurseryman.
- D. Cutting of Trees: Do not cut trees for the performance of the work except as absolutely necessary. Protect trees that remain in the vicinity of the work from damage from equipment. Do not store spoil from excavation against the trunks. Remove excavated material stored over the root system of trees within 30 days to allow proper natural watering of the root system. Repair any damaged tree over 3-inches in diameter, not to be removed, under the direction of an experienced nurseryman. All trees and brush that require removal shall be promptly and completely removed from the work area and disposed of by the CONTRACTOR. No stumps, wood piles, or trash piles will be permitted on the work site.
- E. Disposal of Rubbish: Dispose of all materials cleared and grubbed during the construction of the Project in accordance with the applicable codes and rules of the appropriate county, state and federal regulatory agencies.

### **3.12 ABANDONING EXISTING WATER MAINS (Not Used)**

END OF SECTION

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**SECTION 02933**  
**Seeding****PART 1 GENERAL****1.1 SCOPE**

- A. The work covered by this section shall include the establishment of all ground cover including areas to be seeded and sodded. This work shall include the supply of all materials, labor, superintendence and maintenance as outlined in these specifications.
- B. The part of the site not covered by roads, walks, building, etc. shall be seeded according to these specifications. The areas to be sodded shall include a three foot strip immediately adjacent to all roads, walks, and structures, etc.
- C. Before final acceptance of the work, the CONTRACTOR shall satisfactorily clean all areas within the limits of his operations including the street surfaces, walks, gutters, fences, lawns, private property and structures, leaving them in as neat, clean and usable condition as originally found. He shall remove all machinery, tools, surplus materials, temporary buildings and other structures from the site of work. He shall so remove all organic matter and materials containing organic matter from all areas and places used by him during construction. All sewers, manholes, inlets, etc., shall be cleared of all scaffolding, sedimentation, debris, rubbish and dirt.

Where the CONTRACTOR's operations have resulted in filling existing ditches, clogging existing culverts, damaging existing bridges, ground surfaces, sidewalks, driveways, etc., the Contract shall reditch, clean culverts, repair or replace bridges, ground surfaces, sidewalks, driveways, etc., so as to return them to a condition as good as or better than existed prior to the beginning of his operations.

The CONTRACTOR's cleanup operations, which include repair, restoration or replacement of ground surfaces and existing improvements and the removal of rock, shall be performed continuously during the construction operations.

Following installation of the pipeline, "rough cleanup" work shall be performed. This shall consist of grading the trench to create a neat, low mound of backfill material and disposing of any excavated material, rubbish, etc. Crushed stone shall be added to driveways where necessary and fences repaired to the satisfaction of the property owners. After trenches have had adequate time to settle, final grade work and seeding shall be performed.

Rough Grade Work and Cleanup (Rough Cleanup) shall be defined to include the final backfill and windrowing of the ditch line, filling and leveling street and driveway cuts, cleaning up and removal of rubbish, repair of fences and structures,



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and any other such work that may be required to result in a neat, orderly project area. Rough Cleanup shall be performed as other construction progresses and must be completed immediately after the adjacent pipeline construction.

Rough Cleanup is not a separate pay item. The cost for this work shall be included in the unit bid price for waterlines. If Rough Cleanup is not performed as specified, the OWNER will require deductions from partial payment estimates.

Final cleanup, grade work and seeding shall be performed on each line when backfilled trenches have had adequate time to settle, but at least within 2 months from the date each line is constructed. Final grade work and seeding on Kentucky Bureau of Highways rights-of-way shall be done in accordance with said Bureau's specifications and the permit granted to the OWNER specifically for this project.

Where work was performed on private property in lawns, earth of good quality, free from rock shall be spread over the disturbed area and graded and compacted to match adjacent ground contours. The graded area shall be hand raked until smooth and free from rock, potholes, and humps. The disturbed area shall then be seeded with the seed variety used on the original lawn (e.g., a bluegrass lawn shall be reseeded with bluegrass seed) and the seed raked in lightly. The seeded area shall be fertilized and then uniformly covered with straw to a depth of approximately 1-1/2 inches.

Where work was performed on private property and not in lawns the trench line shall be graded and filled if necessary to match adjacent contours. All rock larger than 1-1/2" in diameter shall be removed from the disturbed area. In general, pasture and fallow land shall be fertilized and seeded with Kentucky 31 Fescue and plowed fields shall be left unseeded, however, the desire of each property owner shall govern regarding seeding.

In all cases on private property the rate of seed and fertilizer application shall be that recommended by the University of Kentucky Cooperative Extension Service for new plantings of the variety of grass seed used.

If the trench line settles following final grade work or if grass seed fails to germinate within a reasonable time, the CONTRACTOR shall regrade or reseed the area in question as specified above and as directed by the ENGINEER.

The OWNER reserves the right to require the CONTRACTOR to obtain a signed Release from each property owner affected by the work. Said Release shall indicate that the property owner is satisfied with the restoration of his land. However, the execution of such a release shall not relieve the CONTRACTOR from any of his contractual obligations or other claims that may arise at a later date. The widths of construction easements obtained by the OWNER from

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property owners is normally 20 feet and the CONTRACTOR shall confine his activities to the area within the limits of the easements unless specific permission is obtained by the CONTRACTOR from property owners.

## **PART 2 PRODUCTS**

### **2.1 LIME**

- A. Agriculture lime shall be spread over the entire area to be planted at an average rate of one (1) ton per acre. One tillage operation shall incorporate both the lime and the fertilizer into the soil to a depth of four inches (4").

### **2.2 FERTILIZER**

- A. Two fertilizer materials shall be applied to all areas to be seeded. The first shall be complete commercial fertilizer with 1:2:2 ratio of nitrogen, phosphorus, and potassium. Eight hundred pounds (800 lbs) per acre of a 6-12-12 fertilizer, or equivalent amount of another 1:2:2 ratio fertilizer shall be used.
- B. In addition to a complete fertilizer, a slowly available nitrogen fertilizer shall be applied. Two hundred fifty pounds (250 lbs.) per acre of area formaldehyde (38-0-0) shall be used.
- C. Both fertilizer materials shall be free flowing and suitable for application with approved equipment. Each material shall conform to State fertilizer laws. Bagged fertilizer shall be delivered in sealed standard containers and shall bear the name, trademark, and warranty of the producer. The fertilizers shall be incorporated into the surface four inches (4") by tillage.

### **2.3 SEED**

- A. Grass seed shall be fresh, clean and new crop seed composed of the following varieties mixed in the proportion by weight as shown and shall be certified as to varietal purity. All seed shall be mixed by a dealer furnished in sealed standard containers, and tagged with the dealer's guaranteed statement of composition of mixture and percentage of purity and germination. All areas disturbed by construction activity shall be seeded within the following blend at a rate of two hundred pounds (200 lbs.) per acre (4.6 pounds per 1000 square feet).
- B. The quality of seed shall conform to or exceed the minimum requirement for seed quality of the Kentucky Seed Improvement Association and shall meet or exceed the following standards for purity and germination:

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Variety	Min% Purity/Germ	Wt.%	Seeding Rate Pounds Per Acre
Kentucky Bluegrass-Kenblue	98/80	20	40
Creeping Red Fescue-Pennlawn	98/85	70	140
Perennial Ryegrass	95/90	10	20

**2.4 MULCH**

- A. Mulch for hydroseeding shall be natural wood cellulose fiber or wood pulp which disperses readily in water and which has no toxic effect when combined with seed or other materials. It shall be a commercially available product made for use in spray applicators. Wood cellulose mulch shall be applied at a rate of 1000 lbs. per acre when work is done in the spring or fall season as defined below and 1500 pounds per acre when work is done during summer months.

**2.5 SOD**

- A. Sod shall be bluegrass sod strongly rooted and free of pernicious weeds. It shall be a uniform thickness of not more than 1 1/2" and shall have not less than 3/4" of soil. All sod shall be grown on a commercial turf farm and no pasture sod shall be acceptable. The source of the sod must be approved by the Engineer before it is cut for delivery.

**PART 3 EXECUTION**

**3.1 PLANTING SEASON**

- A. The normal seasonal dates for seeding mixtures containing Kentucky Bluegrass or tall fescue shall be August 15 to October 15 and from the time the soil is workable in the spring to May 1. Seeding of a specified grass variety at times other than the normal seasonal dates must be approved by the ENGINEER. Seeding shall not be done during windy weather or when the ground is excessively wet, frozen or otherwise untillable.

**3.2 SOIL PREPARATION**

- A. All areas shall be graded to surface drain as shown on the plans. The lime and fertilizer shall be applied at the rates specified above and tilled into the surface 4 inches with approved tillage equipment to provide a reasonably firm, but friable seedbed.

- B. All areas to be seeded or sodded shall meet the specified grades, and be free of any weed or undesirable plant growth or debris.
- C. Lime and fertilizer for all areas shall be applied at the rate specified and incorporated into the top four inches by approved tillage equipment. The seed and wood cellulose mulch shall then be mixed with adequate water to produce a slurry and then applied uniformly with a hydroseeder at the rates specified above. Any area inadequately covered shall be redone as directed by the ENGINEER.

### **3.3 MAINTENANCE OF SEEDED AREAS:**

- A. The CONTRACTOR shall maintain seeded areas until they have been mowed two times and then he shall repair eroded areas one time after the second mowing. Each mowing shall be when the grass is about four inches (4") high and cut back to about 2 1/2". After the second mowing, the CONTRACTOR shall notify the ENGINEER that he is ready to repair erosion damage so that an inspection can be scheduled when the erosion repair work is complete. Once the erosion areas have been filled with topsoil, fertilized, seeded and mulched and the work has been inspected and approved by the ENGINEER, the work under this section is complete. Any further erosion repair work necessary will be treated as an extra and shall be done only when authorized by the ENGINEER.

### **3.4 CARE DURING CONSTRUCTION**

- A. The CONTRACTOR shall be responsible for repair to turf areas damaged by his equipment or men until all work is accepted. Temporary haul roads and storage areas shall be tilled to depth of four inches (4") and fertilized, seeded and mulched as specified above.

END OF SECTION

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**SECTION 02957**  
**Erosion Control and Stabilization**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. This Section includes provisions for erosion control and stabilization.

**PART 2 PRODUCTS**

**2.1 EROSION CONTROL**

- A. All drainage paths and swales to be cut, graded, and seeded prior to any utilities trenching.
- B. All drainage paths and excavated areas to be mulched upon completion of seeding. Straw bales are to be staked perpendicular to flow in bottom of swale every 100 feet along drainage swale route. Straw bales to remain in swale route until a substantial growth of grass has been established. Straw bales are to be staked around all inlet rims where swale lines are excavated to route storm water flow into inlet.
- C. Erosion control requires immediate seeding and mulching of any stripped and unvegetated areas, including unpaved right-of-ways.

**2.2 SEEDING**

- A. A leguminous inoculated seed mixture shall be used for all seed areas. Class of seeding as follows:

1. Mixture A: shall be used for all drainage paths, swales, side slopes, and all other areas where existing lawn is disturbed during construction.

Seed mixture shall be as follows:

2 lbs./1000 sq. ft. - Chewings Fescue  
2 lbs./1000 sq. ft. - Kentucky Bluegrass  
2 lbs./1000 sq. ft. - Perennial Rye

Seed shall be sown at a rate of 6 lbs. per 1000 sq. ft. of area.

2. Mixture B: shall be for all areas disturbed by excavation and re-grading as seasonal or temporary cover in bare areas.

Seed mixture shall be as follows:

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Erosion Control and Stabilization

1 lb./1000 sq. ft. - Perennial Rye

1 lb./1000 sq. ft. - Annual Rye

Seed shall be sown at a rate of 4 lbs. per 1000 sq. ft. of area.

3. Mixture C: shall be used for all lake or pond banks.

Seed mixture shall be as follows:

20% Perennial Ryegrass

15% Kentucky Bluegrass

15% Creeping Red Fescue

50% Nutri-Kote plus Apron fungicide seed coating.

Seed shall be sown at a rate of 5 lbs. per 1000 sq. ft. of area.

**2.3 FERTILIZER**

- A. Apply a minimum of 600 lbs. of 12-12-12 fertilizer per acre.

**2.4 MULCH**

- A. Mulch shall consist of clean, seed-free threshed straw of wheat, rye, oats, or barley. Spread mulch uniformly to form a continuous blanket not less than 1.5 inches loose measurement over "Mixture A" and "Mixture C" seeded areas.
- B. The mulch shall be held in place by being mechanically crimped into the soil, tackified with a bio-degradable tackifier, or netted and stapled to the soil with degradable netting. The mulch should be applied at a minimum rate of 1500 lbs. per acre.

**2.5 STRAW TACKIFIER - MULCH TACKIFIER**

- A. The tackifier shall be a naturally derived product from all organic sources resulting in a strong resilient muciloid, non-bitumen M-Binder. The product can be used in a hydro-seeder with both 100% Virgin Wood Fiber or Paper Wood Cellulose mulch and can be sprayed on 100% Wheat Straw Mulch for stabilization from the wind. Application rates vary between 60-140 lbs. per acre depending upon the existing conditions. The product shall be packed in 40 lbs. fiber bags.

Technical Specifications:

Protein Content	1.62
Ash Content	2.7
Fiber	4.0
pH of 1% Solution	6.8
Settleable Solids	5.0

- B. Erosion control requires immediate seeding and mulching of any stripped and un-vegetated areas, including unpaved right-of-ways.

**PART 3 (NOT USED)**

END OF SECTION

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**SECTION 03300**  
**Cast-in-place Concrete**

**PART 1 GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section specifies cast-in place concrete, including formwork, reinforcing, mix design, placement procedures, and finishes.
- B. Cast-in-place concrete includes the following:
  - 1. Foundations and footings.
  - 2. Slabs-on-grade.
  - 3. Fill for steel deck.
  - 4. Foundation walls.
  - 5. Shear walls.
  - 6. Load-bearing building walls.
  - 7. Building frame members.
  - 8. Equipment pads and bases.
  - 9. Fill for steel pan stairs.

**1.3 SUBMITTALS**

- A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, dry-shake finish materials, and others if requested by ENGINEER.
- C. Shop drawings for reinforcement detailing fabricating, bending, and placing concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, bent bar diagrams, and arrangement of concrete reinforcement. Include special reinforcing required for openings through concrete structures.
- D. Shop drawings for formwork indicating fabrication and erection of forms for specific finished concrete surfaces. Show form construction including jointing, special form joints or reveals, location and pattern of form tie placement, and other items that affect exposed concrete visually.



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Cast-in-place Concrete

1. ENGINEER's review is for general applications and features only. Designing formwork for structural stability and efficiency is CONTRACTOR's responsibility.
- E. Samples of materials as requested by ENGINEER, including names, sources, and descriptions, as follows:
1. Color finishes.
  2. Normal weight aggregates.
  3. Fiber reinforcement.
  4. Reglets.
  5. Waterstops.
  6. Vapor retarder/barrier.
  7. Form liners.
- F. Laboratory test reports for concrete materials and mix design test.
- G. Material certificates in lieu of material laboratory test reports when permitted by ENGINEER. Material certificates shall be signed by manufacturer and CONTRACTOR, certifying that each material item complies with or exceeds specified requirements. Provide certification from admixture manufacturers that chloride content complies with specification requirements.

#### **1.4 QUALITY ASSURANCE**

- A. Codes and Standards: Comply with provisions of the following codes, specifications, and standards, except where more stringent requirements are shown or specified:
1. American Concrete Institute (ACI) 301, "Specifications for Structural Concrete for Buildings."
  2. ACI 318, "Building Code Requirements for Reinforced Concrete."
  3. Concrete Reinforcing Steel Institute (CRSI) "Manual of Standard Practice."
- B. Concrete Testing Service: Engage a testing agency acceptable to ENGINEER to perform material evaluation tests and to design concrete mixes.
- C. Materials and installed work may require testing and retesting at any time during progress of Work. Tests, including retesting of rejected materials for installed Work, shall be done at CONTRACTOR's expense.

### **PART 2 - PRODUCTS**

#### **2.1 FORM MATERIALS**

- A. Forms for Exposed Finish Concrete: Plywood, metal, metal-framed plywood faced, or

other acceptable panel-type materials to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings.

- B. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or another acceptable material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Forms for Textured Finish Concrete: Units of face design, size, arrangement, and configuration to match control sample. Provide solid backing and form supports to ensure stability of textured form liners.
- D. Forms for Cylindrical Columns and Supports: Metal, glass-fiber-reinforced plastic, or paper or fiber tubes that will produce smooth surfaces without joint indications. Provide units with sufficient wall thickness to resist wet concrete loads without deformation.
- E. Pan-Type Forms: Glass-fiber-reinforced plastic or formed steel, stiffened to support weight of placed concrete without deformation.
- F. Carton Forms: Biodegradable paper surface, treated for moisture-resistance, structurally sufficient to support weight of plastic concrete and other superimposed loads.
- G. Form Release Agent: Provide commercial formulation form release agent with a maximum of 350 g/L volatile organic compounds (VOCs) that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
- H. Form Ties: Factory-fabricated, adjustable-length, stainless steel, removable or snap-off metal form ties designed to prevent form deflection and to prevent spalling of concrete upon removal. Provide units that will leave no metal closer than 1-1/2 inches (38 mm) to the plane of the exposed concrete surface.
  - 1. Provide ties that, when removed, will leave holes not larger than 1 inch (25 mm) in diameter in the concrete surface. Use only stainless material.

## 2.2 REINFORCING MATERIALS

- A. Reinforcing Bars: ASTM A 615 Grade 60 (ASTM A 615M Grade 400), deformed.
- B. Galvanized Reinforcing Bars: ASTM A 767 (ASTM A 767M), Class II [2.0 oz. zinc psf (610 g/sq. m)], hot-dip galvanized after fabrication and bending.
- C. Epoxy-Coated Reinforcing Bars: ASTM A 775 (ASTM A 775M).
- D. Steel Wire: ASTM A 82, plain, cold-drawn steel.
- E. Welded Wire Fabric: ASTM A 185, welded steel wire fabric.

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Cast-in-place Concrete

- F. Deformed-Steel Welded Wire Fabric: ASTM A 497.
- G. Epoxy-Coated Welded Wire Fabric: ASTM A 884, Class A.
- H. Supports for Reinforcement: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use wire bar-type supports complying with CRSI specifications.
  - 1. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
  - 2. For exposed-to-view concrete surfaces where legs of supports are in contact with forms, provide supports with legs that are protected by plastic (CRSI, Class 1) or stainless steel (CRSI, Class 2).

**2.3 CONCRETE MATERIALS**

- A. Portland Cement: ASTM C 150, Type I.
  - 1. Use one brand of cement throughout Project.
- B. Fly Ash: ASTM C 618, Type F.
- C. Normal-Weight Aggregates: ASTM C 33 and as specified. Provide aggregates from a single source for exposed concrete.
  - 1. For exposed exterior surfaces, do not use fine or coarse aggregates that contain substances that cause spalling.
  - 2. Local aggregates not complying with ASTM C 33 that have been shown to produce concrete of adequate strength and durability by special tests or actual service may be used when acceptable to Engineer.
- D. Lightweight Aggregates: ASTM C 330.
- E. Water: Potable.
- F. Fiber Reinforcement: Polypropylene fibers engineered and designed for secondary reinforcement of concrete slabs, complying with ASTM C 1116, Type III, not less than 3/4 inch long.
  - 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
    - a. Gilco Fibers, Cormix Construction Chemicals.
    - b. Durafiber, Durafiber Corp.
    - c. Fiberstrand 100, Euclid Chemical Co.
    - d. Fibermesh, Fibermesh Co., Div. Synthetic Industries, Inc.

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- e. Forta, Forta Corp.
  - f. Grace Fibers, W.R. Grace & Co.
  - g. Polystrand, Metalcrete Industries
- G. Admixtures, General: Provide concrete admixtures that contain not more than 0.1 percent chloride ions.
- H. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.
- 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
    - a. Air-Tite, Cormix Construction Chemicals.
    - b. Air-Mix or Perma-Air, Euclid Chemical Co.
    - c. Darex AEA or Daravair, W.R. Grace & Co.
    - d. MB-VR or Micro-Air, Master Builders, Inc.
    - e. Sealtight AEA, W.R. Meadows, Inc.
    - f. Sika AER, Sika Corp.
- I. Water-Reducing Admixture: ASTM C 494, Type A.
- 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
    - a. Chemtard, ChemMasters Corp.
    - b. PSI N, Cormix Construction Chemicals.
    - c. Eucon WR-75, Euclid Chemical Co.
    - d. WRDA, W.R. Grace & Co.
    - e. Pozzolith Normal or Polyheed, Master Builders, Inc.
    - f. Metco W.R., Metalcrete Industries.
    - g. Prokrete-N, Prokrete Industries.
    - h. Plastocrete 161, Sika Corp.
- J. High-Range Water-Reducing Admixture: ASTM C 494, Type F or Type G.
- 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
    - a. Super P, Anti-Hydro Co., Inc.
    - b. Cormix 200, Cormix Construction Chemicals.
    - c. Eucon 37, Euclid Chemical Co.
    - d. WRDA 19 or Daracem, W.R. Grace & Co.
    - e. Rheobuild or Polyheed, Master Builders, Inc.
    - f. Superslump, Metalcrete Industries.
    - g. PSPL, Prokrete Industries.

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- h. Sikament 300, Sika Corp.
- K. Water-Reducing, Accelerating Admixture: ASTM C 494, Type E.
  - 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
    - a. Q-Set, Conspec Marketing & Manufacturing Co.
    - b. Lubricon NCA, Cormix Construction Chemicals.
    - c. Accelguard 80, Euclid Chemical Co.
    - d. Daraset, W.R. Grace & Co.
    - e. Pozzutec 20, Master Builders, Inc.
    - f. Accel-Set, Metalcrete Industries.
- L. Water-Reducing, Retarding Admixture: ASTM C 494, Type D.
  - 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
    - a. PSI-R Plus, Cormix Construction Chemicals.
    - b. Eucon Retarder 75, Euclid Chemical Co.
    - c. Daratard-17, W.R. Grace & Co.
    - d. Pozzolith R, Master Builders, Inc.
    - e. Protard, Prokrete Industries.
    - f. Plastiment, Sika Corporation.

**2.4 RELATED MATERIALS**

- A. Reglets: Where sheet flashing or bituminous membranes are terminated in reglets, provide reglets of not less than 0.0217- inch- (0.46-mm-) thick galvanized sheet steel. Fill reglet or cover face opening to prevent intrusion of concrete or debris.
- B. Dovetail Anchor Slots: Hot-dip galvanized sheet steel, not less than 0.0336 inch thick (0.76 mm) with bent tab anchors. Fill slot with temporary filler or cover face opening to prevent intrusion of concrete or debris.
- C. Waterstops: Provide flat, dumbbell-type or centerbulb-type waterstops at construction joints and other joints as indicated. Size to suit joints.
- D. Rubber Waterstops: Corps of Engineers CRD-C 513.
  - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

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- a. The Burke Co.
  - b. Progress Unlimited.
  - c. Williams Products, Inc.
- E. Polyvinyl Chloride Waterstops: Corps of Engineers CRD-C 572.
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
    - a. The Burke Co.
    - b. Greenstreak Plastic Products Co.
    - c. W.R. Meadows, Inc.
    - d. Progress Unlimited.
    - e. Schlegel Corp.
    - f. Vinylex Corp.
- F. Sand Cushion: Clean, manufactured or natural sand.
- G. Vapor Retarder: Provide vapor retarder that is resistant to deterioration when tested according to ASTM E 154, as follows:
1. Polyethylene sheet not less than 8 mils (0.2 mm) thick.
- H. Vapor Barrier: Premolded seven-ply membrane consisting of reinforced core and carrier sheet with fortified bitumen layers, protective weathercoating, and plastic antistick sheet. Water vapor transmission rate of 1 perm when tested according to ASTM E 96, Method B. Provide manufacturer's recommended mastics and gusset tape.
1. Product: Subject to compliance with requirements, provide Sealtight Premoulded Membrane by W.R. Meadows, Inc. or approved equal.
- I. Nonslip Aggregate Finish: Provide fused aluminum oxide granules or crushed emery as the abrasive aggregate for a nonslip finish, with emery aggregate containing not less than 50 percent aluminum oxide and not less than 25 percent ferric oxide. Use material that is factory-graded, packaged, rustproof, nonglazing, and unaffected by freezing, moisture, and cleaning materials.
- J. Colored Wear-Resistant Finish: Packaged dry combination of materials consisting of portland cement, graded quartz aggregate, coloring pigments, and plasticizing admixture. Use coloring pigments that are finely ground nonfading mineral oxides interground with cement. Color as selected by OWNER from manufacturers' standards, unless otherwise indicated.
1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:

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- a. Conshake 600 Colortone, Conspec Marketing & Mfg. Co.
  - b. Floorcron, Cormix Construction Chemicals.
  - c. Quartz Tuff, Dayton-Superior.
  - d. Surfex, Euclid Chemical Co.
  - e. Colorundum, A.C. Horn, Inc.
  - f. Quartz Plate, L&M Construction Chemicals, Inc.
  - g. Colorcron, Master Builders, Inc.
  - h. Floor Quartz, Metalcrete Industries
  - i. Lithochrome Color Hardener, L.M. Scofield Co.
  - j. Harcol Redi-Mix, Sonneborn-Chemrex.
  - k. Hard Top, Symons Corp.
- K. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m), complying with AASHTO M 182, Class 2.
- L. Moisture-Retaining Cover: One of the following, complying with ASTM C 171.
1. Waterproof paper.
  2. Polyethylene film.
  3. Polyethylene-coated burlap.
- M. Liquid Membrane-Forming Curing Compound: Liquid-type membrane-forming curing compound complying with ASTM C 309, Type I, Class A. Moisture loss not more than 0.55 kg/sq. m when applied at 200 sq. ft./gal (4.9 sq. m/L).
1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
    - a. A-H 3 Way Sealer, Anti-Hydro Co., Inc.
    - b. Spartan-Cote, The Burke Co.
    - c. Conspec #1, Conspec Marketing & Mfg. Co.
    - d. Sealco 309, Cormix Construction Chemicals.
    - e. Day-Chem Cure and Seal, Dayton Superior Corp.
    - f. Eucocure, Euclid Chemical Co.
    - g. Horn Clear Seal, A.C. Horn, Inc.
    - h. L&M Cure R, L&M Construction Chemicals, Inc.
    - i. Masterkure, Master Builders, Inc.
    - j. CS-309, W.R. Meadows, Inc.
    - k. Seal N Kure, Metalcrete Industries.
    - l. Kure-N-Seal, Sonneborn-Chemrex.
    - m. Stontop CS2, Stonhard, Inc.
- N. Water-Based Acrylic Membrane Curing Compound: ASTM C 309, Type I, Class B.
1. Provide material that has a maximum volatile organic compound (VOC) rating of

- 350 g/L.
2. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
    - a. Highseal, Conspec Marketing and Mfg. Co.
    - b. Sealco - VOC, Cormix Construction Chemicals.
    - c. Safe Cure and Seal, Dayton Superior Corp.
    - d. Aqua-Cure, Euclid Chemical Co.
    - e. Dress & Seal WB, L&M Construction Chemicals, Inc.
    - f. Masterkure 100W, Master Builders, Inc.
    - g. Vocomp-20, W.R. Meadows, Inc.
    - h. Metcure, Metalcrete Industries.
    - i. Stontop CS1, Stonhard, Inc.
- O. Evaporation Control: Monomolecular film-forming compound applied to exposed concrete slab surfaces for temporary protection from rapid moisture loss.
1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
    - a. Aquafilm, Conspec Marketing and Mfg. Co.
    - b. Eucobar, Euclid Chemical Co.
    - c. E-Con, L&M Construction Chemicals, Inc.
    - d. Confilm, Master Builders, Inc.
    - e. Waterhold, Metalcrete Industries.
- P. Underlayment Compound: Free-flowing, self-leveling, pumpable, cement-based compound for applications from 1 inch (25 mm) thick to feathered edges.
1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
    - a. K-15, Ardex, Inc.
    - b. Self-Leveling Wear Topping, W.R. Bonsal Co.
    - c. Conflow, Conspec Marketing and Mfg. Co.
    - d. Corlevel, Cormix Construction Chemicals.
    - e. LevelLayer II, Dayton Superior Corp.
    - f. Flo-Top, Euclid Chemical Co.
    - g. Gyp-Crete, Gyp-Crete Corp.
    - h. Levelex, L&M Construction Chemicals, Inc.
    - i. Underlayment 110, Master Builders, Inc.
    - j. Stoncrete UL1, Stonhard, Inc.
    - k. Concrete Top, Symons Corp.
    - l. Thoro Underlayment Self-Leveling, Thoro System Products.



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- Q. Bonding Agent: Polyvinyl acetate or acrylic base.
1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
    - a. Polyvinyl Acetate (Interior Only):
      - 1) Superior Concrete Bonder, Dayton Superior Corp.
      - 2) Euco Weld, Euclid Chemical Co.
      - 3) Weld-Crete, Larsen Products Corp.
      - 4) Everweld, L&M Construction Chemicals, Inc.
      - 5) Herculox, Metalcrete Industries.
      - 6) Ready Bond, Symons Corp.
    - b. Acrylic or Styrene Butadiene:
      - 1) Acrylic Bondcrete, The Burke Co.
      - 2) Strongbond, Conspec Marketing and Mfg. Co.
      - 3) Day-Chem Ad Bond, Dayton Superior Corp.
      - 4) SBR Latex, Euclid Chemical Co.
      - 5) Daraweld C, W.R. Grace & Co.
      - 6) Hornweld, A.C. Horn, Inc.
      - 7) Everbond, L&M Construction Chemicals, Inc.
      - 8) Acryl-Set, Master Builders Inc.
      - 9) Intralok, W.R. Meadows, Inc.
      - 10) Acrylpave, Metalcrete Industries.
      - 11) Sonocrete, Sonneborn-Chemrex.
      - 12) Stonlock LB2, Stonhard, Inc.
      - 13) Strong Bond, Symons Corp.
- R. Epoxy Adhesive: ASTM C 881, two-component material suitable for use on dry or damp surfaces. Provide material type, grade, and class to suit Project requirements.
1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
    - a. Burke Epoxy M.V., The Burke Co.
    - b. Spec-Bond 100, Conspec Marketing and Mfg. Co.
    - c. Resi-Bond (J-58), Dayton Superior.
    - d. Euco Epoxy System #452 or #620, Euclid Chemical Co.
    - e. Epoxite Binder 2390, A.C. Horn, Inc.
    - f. Epabond, L&M Construction Chemicals, Inc.
    - g. Concessive Standard Liquid, Master Builders, Inc.
    - h. Rezi-Weld 1000, W.R. Meadows, Inc.
    - i. Metco Hi-Mod Epoxy, Metalcrete Industries.

- j. Sikadur 32 Hi-Mod, Sika Corp.
- k. Stonset LV5, Stonhard, Inc.
- l. R-600 Series, Symons Corp.

## 2.5 PROPORTIONING AND DESIGNING MIXES

- A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. For the trial batch method, use an independent testing agency acceptable to Engineer for preparing and reporting proposed mix designs.
  1. Do not use the same testing agency for field quality control testing.
  2. Limit use of fly ash to not exceed 25 percent of cement content by weight.
- B. Submit written reports to ENGINEER of each proposed mix for each class of concrete prior to start of Work. Do not begin concrete production until proposed mix designs have been reviewed.
- C. Design mixes to provide normal weight concrete with the following properties as indicated on drawings and schedules:
  1. 4000 psi (27.6 MPa), 28-day compressive strength; water-cement ratio, 0.44 maximum (non-air-entrained), 0.35 maximum (air-entrained).
- D. Water-Cement Ratio: Provide concrete for following conditions with maximum water-cement (W/C) ratios as follows:
  1. Subjected to freezing and thawing: W/C 0.45.
  2. Subjected to deicers/watertight: W/C 0.40.
  3. Subjected to brackish water, salt spray, or deicers: W/C 0.40.
- E. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:
  1. Ramps, slabs, and sloping surfaces: Not more than 3 inches (75 mm).
  2. Reinforced foundation systems: Not less than 1 inch (25 mm) and not more than 3 inches (75 mm).
  3. Concrete containing high-range water-reducing admixture (superplasticizer): Not more than 8 inches (200 mm) after adding admixture to site-verified 2 - 3 inch (50 - 75 mm) slump concrete.
  4. Other concrete: Not more than 4 inches (100 mm).
- F. Lightweight Structural Concrete: Lightweight aggregate and concrete shall conform to ASTM C 330. Proportion mix to produce concrete with a minimum compressive strength of 3000 psi (20.7) at 28 days and a calculated equilibrium unit weight of 110 pcf (1762

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kg/cu. m) plus or minus 3 pcf (48.1 kg/cu. m) as determined by ASTM C 567. Concrete slump at the point of placement shall be the minimum necessary for efficient mixing, placing, and finishing. Maximum slump shall be 6 inches (150 mm) for pumped concrete and 5 inches (125 mm) elsewhere. Air entrain concrete exposed to weather according to ACI 301 requirements.

- G. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, as accepted by ENGINEER. Laboratory test data for revised mix design and strength results must be submitted to and accepted by ENGINEER before using in Work.
- H. Fiber Reinforcement: Add at manufacturer's recommended rate but not less than 1.5 lb/cu. yd. (0.9 kg/cu. m).

## 2.6 ADMIXTURES

- A. Use water-reducing admixture or high-range water-reducing admixture (superplasticizer) in concrete, as required, for placement and workability.
- B. Use accelerating admixture in concrete slabs placed at ambient temperatures below 50 deg F (10 deg C).
- C. Use high-range water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs, architectural concrete, parking structure slabs, concrete required to be watertight, and concrete with water-cement ratios below 0.50.
- D. Use air-entraining admixture in exterior exposed concrete unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content with a tolerance of plus or minus 1-1/2 percent within the following limits:
  - 1. Concrete structures and slabs exposed to freezing and thawing, deicer chemicals, or hydraulic pressure:
    - a. 4.5 percent (moderate exposure); 5.5 percent (severe exposure) for 1-1/2 inch (38 mm) maximum aggregate.
    - b. 4.5 percent (moderate exposure); 6.0 percent (severe exposure) for 1 inch (25 mm) maximum aggregate.
    - c. 5.0 percent (moderate exposure); 6.0 percent (severe exposure) for 3/4 inch (19 mm) maximum aggregate.
    - d. 5.5 percent (moderate exposure); 7.0 percent (severe exposure) for 1/2 inch (13 mm) maximum aggregate.
  - 2. Other concrete not exposed to freezing, thawing, or hydraulic pressure, or to receive a surface hardener: 2 to 4 percent air.

- E. Use admixtures for water reduction and set accelerating or retarding in strict compliance with manufacturer's directions.

## 2.7 CONCRETE MIXING

- A. Ready-Mixed Concrete: Comply with requirements of ASTM C 94, and as specified.
  - 1. When air temperature is between 85 deg F (29 deg C) and 90 deg F (32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. Coordinate the installation of joint materials, vapor retarder/barrier, and other related materials with placement of forms and reinforcing steel.

### 3.2 FORMS

- A. General: Design, erect, support, brace, and maintain formwork to support vertical, lateral, static, and dynamic loads that might be applied until concrete structure can support such loads. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation, and position. Maintain formwork construction tolerances and surface irregularities complying with the following ACI 347 limits:
  - 1. Provide Class A tolerances for concrete surfaces exposed to view.
  - 2. Provide Class C tolerances for other concrete surfaces.
- B. Construct forms to sizes, shapes, lines, and dimensions shown and to obtain accurate alignment, location, grades, level, and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in the Work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent cement paste from leaking.
- C. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like for easy removal.
- D. Provide temporary openings for clean-outs and inspections where interior area of formwork is inaccessible before and during concrete placement. Securely brace temporary openings

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and set tightly to forms to prevent losing concrete mortar. Locate temporary openings in forms at inconspicuous locations.

- E. Chamfer exposed corners and edges as indicated, using wood, metal, PVC, or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.
- F. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.
- G. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before placing concrete. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

### **3.3 VAPOR RETARDER/BARRIER INSTALLATION**

- A. General: Place vapor retarder/barrier sheeting in position with longest dimension parallel with direction of pour.
- B. Lap joints 6 inches (150 mm) and seal with manufacturer's recommended mastic or pressure-sensitive tape.
  - 1. Cover vapor retarder/barrier with sand cushion and compact to depth indicated.

### **3.4 PLACING REINFORCEMENT**

- A. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports and as specified.
  - 1. Avoiding cutting or puncturing vapor retarder/barrier during reinforcement placement and concreting operations. Repair damages before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that reduce or destroy bond with concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as approved.
- D. Place reinforcement to maintain minimum coverages as indicated for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least

one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

### 3.5 JOINTS

- A. Construction Joints: Locate and install construction joints so they do not impair strength or appearance of the structure.
- B. Provide keyways at least 1-1/2 inches (38 mm) deep in construction joints in walls and slabs and between walls and footings. Bulkheads designed and accepted for this purpose may be used for slabs.
- C. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints except as indicated otherwise. Do not continue reinforcement through sides of strip placements.
- D. Use bonding agent on existing concrete surfaces that will be joined with fresh concrete.
- E. Waterstops: Provide waterstops in construction joints as indicated. Install waterstops to form continuous diaphragm in each joint. Support and protect exposed waterstops during progress of Work. Field-fabricate joints in waterstops according to manufacturer's printed instructions.
- F. Isolation Joints in Slabs-on-Grade: Construct isolation joints in slabs-on-grade at points of contact between slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
- G. Contraction (Control) Joints in Slabs-on-Grade: Construct contraction joints in slabs-on-grade to form panels of patterns as shown. Use saw cuts 1/8 inch (3 mm) wide by one-fourth of slab depth or inserts 1/4 inch (6 mm) wide by one-fourth of slab depth, unless otherwise indicated.
  - 1. Form contraction joints by inserting premolded plastic, hardboard, or fiberboard strip into fresh concrete until top surface of strip is flush with slab surface. Tool slab edges round on each side of insert. After concrete has cured, remove inserts and clean groove of loose debris.
  - 2. Contraction joints in unexposed floor slabs may be formed by saw cuts as soon as possible after slab finishing as may be safely done without dislodging aggregate.
  - 3. If joint pattern is not shown, provide joints not exceeding 15 ft. (4.5 m) in either direction and located to conform to bay spacing wherever possible (at column centerlines, half bays, third bays).
  - 4. Provide joint fillers and sealants.

### 3.6 INSTALLING EMBEDDED ITEMS

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**Cast-in-place Concrete**

- A. General: Set and build into formwork anchorage devices and other embedded items required for other work that is attached to or supported by cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached.
- B. Install reglets to receive top edge of foundation sheet waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, relieving angles, and other conditions.
- C. Install dovetail anchor slots in concrete structures as indicated on drawings.
- D. Forms for Slabs: Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and contours in finished surfaces. Provide and secure units to support screed strips using strike-off templates or compacting-type screeds.

**3.7 PREPARING FORM SURFACES**

- A. General: Coat contact surfaces of forms with an approved, nonresidual, low-VOC, form-coating compound before placing reinforcement.
- B. Do not allow excess form-coating material to accumulate in forms or come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply according to manufacturer's instructions.
  - 1. Coat steel forms with a nonstaining, rust-preventative material. Rust-stained steel formwork is not acceptable.

**3.8 CONCRETE PLACEMENT**

- A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.
- B. General: Comply with ACI 304, "Guide for Measuring, Mixing, Transporting, and Placing Concrete," and as specified.
- C. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened sufficiently to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation at its final location.
- D. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers no deeper than 24 inches (600 mm) and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.

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Cast-in-place Concrete

1. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete complying with ACI 309.
  2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the machine. Place vibrators to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix to segregate.
- E. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until completing placement of a panel or section.
1. Consolidate concrete during placement operations so that concrete is thoroughly worked around reinforcement, other embedded items and into corners.
  2. Bring slab surfaces to correct level with a straightedge and strike off. Use bull floats or darbies to smooth surface free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
  3. Maintain reinforcing in proper position on chairs during concrete placement.
- F. Cold-Weather Placement: Comply with provisions of ACI 306 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
- G. When air temperature has fallen to or is expected to fall below 40 deg F (4 deg C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C) and not more than 80 deg F (27 deg C) at point of placement.
1. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
  2. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise accepted in mix designs.
- H. Hot-Weather Placement: When hot weather conditions exist that would impair quality and strength of concrete, place concrete complying with ACI 305 and as specified.
1. Cool ingredients before mixing to maintain concrete temperature at time of placement to below 90 deg F (32 deg C). Mixing water may be chilled or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
  2. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedding in concrete.



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3. Fog spray forms, reinforcing steel, and subgrade just before placing concrete. Keep subgrade moisture uniform without puddles or dry areas.
4. Use water-reducing retarding admixture when required by high temperatures, low humidity, or other adverse placing conditions.

**3.9 FINISHING FORMED SURFACES**

- A. **Rough-Formed Finish:** Provide a rough-formed finish on formed concrete surfaces not exposed to view in the finished Work or concealed by other construction. This is the concrete surface having texture imparted by form-facing material used, with tie holes and defective areas repaired and patched, and fins and other projections exceeding 1/4 inch (6 mm) in height rubbed down or chipped off.
- B. **Smooth-Formed Finish:** Provide a smooth-formed finish on formed concrete surfaces exposed to view or to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, painting, or another similar system. This is an as-cast concrete surface obtained with selected form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch defective areas with fins and other projections completely removed and smoothed.
- C. **Smooth-Rubbed Finish:** Unless otherwise shown or scheduled, provide smooth-rubbed finish on all exposed, vertical concrete surfaces that have received smooth-formed finish treatment not later than 1 day after form removal.
  1. Moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
- D. **Grout-Cleaned Finish:** Provide grout-cleaned finish on scheduled concrete surfaces that have received smooth-formed finish treatment.
  1. Combine one part portland cement to one and one-half parts fine sand by volume, and a 50:50 mixture of acrylic or styrene butadiene-based bonding admixture and water to form the consistency of thick paint. Blend standard portland cement and white portland cement in amounts determined by trial patches so that final color of dry grout will match adjacent surfaces.
  2. Thoroughly wet concrete surfaces, apply grout to coat surfaces, and fill small holes. Remove excess grout by scraping and rubbing with clean burlap. Keep damp by fog spray for at least 36 hours after rubbing.
- E. **Related Unformed Surfaces:** At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

### 3.10 MONOLITHIC SLAB FINISHES

- A. Scratch Finish: Apply scratch finish to monolithic slab surfaces to receive concrete floor topping or mortar setting beds for tile, portland cement terrazzo, and other bonded applied cementitious finish flooring material, and where indicated.
1. After placing slabs, finish surface to tolerances of F(F) 15 (floor flatness) and F(L) 13 (floor levelness) measured according to ASTM E 1155 (ASTM E 1155M). Slope surfaces uniformly to drains where required. After leveling, roughen surface before final set with stiff brushes, brooms, or rakes.
- B. Float Finish: Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as specified; slab surfaces to be covered with membrane or elastic waterproofing, membrane or elastic roofing, or sand-bed terrazzo; and where indicated.
1. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating, using float blades or float shoes only, when surface water has disappeared, or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats or by hand-floating if area is small or inaccessible to power units. Finish surfaces to tolerances of F(F) 18 (floor flatness) and F(L) 15 (floor levelness) measured according to ASTM E 1155 (ASTM E 1155M). Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.
- C. Trowel Finish: Apply a trowel finish to monolithic slab surfaces exposed to view and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint, or another thin film-finish coating system.
1. After floating, begin first trowel-finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and finish surfaces to tolerances of F(F) 20 (floor flatness) and F(L) 17 (floor levelness) measured according to ASTM E 1155 (ASTM E 1155M). Grind smooth any surface defects that would telegraph through applied floor covering system.
- D. Trowel and Fine Broom Finish: Where ceramic or quarry tile is to be installed with thin-set mortar, apply a trowel finish as specified, then immediately follow by slightly scarifying the surface with a fine broom.
- E. Nonslip Broom Finish: Apply a nonslip broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.
1. Immediately after float finishing, slightly roughen concrete surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final

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finish with before application.

- F. Nonslip Aggregate Finish: Apply nonslip aggregate finish to concrete stair treads, platforms, ramps, sloped walks, and where indicated.
  - 1. After completing float finishing and before starting trowel finish, uniformly spread dampened nonslip aggregate at a rate of 25 lb per 100 sq. ft. (12 kg/10 sq. m) of surface. Tamp aggregate flush with surface using a steel trowel, but do not force below surface. After broadcasting and tamping, apply trowel finishing as specified.
  - 2. After curing, lightly work surface with a steel wire brush or an abrasive stone, and water to expose nonslip aggregate.

### **3.11 MISCELLANEOUS CONCRETE ITEMS**

- A. Filling In: Fill in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place, and cure concrete as specified to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with diagrams or templates of manufacturer furnishing machines and equipment.
- D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Cast-in safety inserts and accessories as shown on drawings. Screed, tamp, and trowel-finish concrete surfaces.

### **3.12 CONCRETE CURING AND PROTECTION**

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply according to manufacturer's instructions after screeding and bull floating, but before power floating and troweling.
- B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.
- C. Curing Methods: Cure concrete by curing compound, by moist curing, by moisture-retaining cover curing, or by combining these methods, as specified.

- D. Provide moisture curing by the following methods:
1. Keep concrete surface continuously wet by covering with water.
  2. Use continuous water-fog spray.
  3. Cover concrete surface with specified absorptive cover, thoroughly saturate cover with water, and keep continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with a 4 inch (100 mm) lap over adjacent absorptive covers.
- E. Provide moisture-retaining cover curing as follows:
1. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches (75 mm) and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
- F. Apply curing compound on exposed interior slabs and on exterior slabs, walks, and curbs as follows:
1. Apply curing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours and after surface water sheen has disappeared). Apply uniformly in continuous operation by power spray or roller according to manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.
  2. Use membrane curing compounds that will not affect surfaces to be covered with finish materials applied directly to concrete.
- G. Curing Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces, by moist curing with forms in place for the full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.
- H. Curing Unformed Surfaces: Cure unformed surfaces, including slabs, floor topping, and other flat surfaces, by applying the appropriate curing method.
1. Final cure concrete surfaces to receive finish flooring with a moisture-retaining cover, unless otherwise directed.

### 3.13 SHORES AND SUPPORTS

- A. General: Comply with ACI 347 for shoring and reshoring in multistory construction, and as specified.

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- B. Extend shoring from ground to roof for structures four stories or less, unless otherwise permitted.
- C. Extend shoring at least three floors under floor or roof being placed for structures over four stories. Shore floor directly under floor or roof being placed, so that loads from construction above will transfer directly to these shores. Space shoring in stories below this level in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members where no reinforcing steel is provided. Extend shores beyond minimums to ensure proper distribution of loads throughout structure.
- D. Remove shores and reshore in a planned sequence to avoid damage to partially cured concrete. Locate and provide adequate reshoring to support work without excessive stress or deflection.
- E. Keep reshores in place a minimum of 15 days after placing upper tier, or longer, if required, until concrete has attained its required 28-day strength and heavy loads due to construction operations have been removed.

**3.14 REMOVING FORMS**

- A. General: Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form-removal operations, and provided curing and protection operations are maintained.
- B. Formwork supporting weight of concrete, such as beam soffits, joists, slabs, and other structural elements, may not be removed in less than 14 days or until concrete has attained at least 75 percent of design minimum compressive strength at 28 days. Determine potential compressive strength of in-place concrete by testing field-cured specimens representative of concrete location or members.
- C. Form-facing material may be removed 4 days after placement only if shores and other vertical supports have been arranged to permit removal of form-facing material without loosening or disturbing shores and supports.

**3.15 REUSING FORMS**

- A. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-coating compound as specified for new formwork.
- B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use patched forms for exposed concrete surfaces except as acceptable.

### 3.16 CONCRETE SURFACE REPAIRS

- A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removing forms, when acceptable.
- B. Mix dry-pack mortar, consisting of one part portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh (1.2 mm) sieve, using only enough water as required for handling and placing.
  - 1. Cut out honeycombs, rock pockets, voids over 1/4 inch (6 mm) in any dimension, and holes left by tie rods and bolts down to solid concrete but in no case to a depth less than 1 inch (25 mm). Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush-coat the area to be patched with bonding agent. Place patching mortar before bonding agent has dried.
  - 2. For surfaces exposed to view, blend white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Provide test areas at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.
- C. Repairing Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Owner. Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes and fill with dry-pack mortar or precast cement cone plugs secured in place with bonding agent.
  - 1. Repair concealed formed surfaces, where possible, containing defects that affect the concrete's durability. If defects cannot be repaired, remove and replace the concrete.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface tolerances specified for each surface and finish. Correct low and high areas as specified. Test unformed surfaces sloped to drain for trueness of slope and smoothness by using a template having the required slope.
  - 1. Repair finished unformed surfaces containing defects that affect the concrete's durability. Surface defects include crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to the reinforcement or completely through nonreinforced sections regardless of width, spalling, popouts, honeycombs, rock pockets, and other objectionable conditions.
  - 2. Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days.

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3. Correct low areas in unformed surfaces during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete. Proprietary underlayment compounds may be used when acceptable.
  4. Repair defective areas, except random cracks and single holes not exceeding 1 inch (25 mm) in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose reinforcing steel with at least 3/4 inch (19 mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
- E. Repair isolated random cracks and single holes 1 inch (25 mm) or less in diameter by dry-pack method. Groove top of cracks and cut out holes to sound concrete and clean of dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Place dry-pack before bonding agent has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- F. Perform structural repairs with prior approval of ENGINEER for method and procedure, using specified epoxy adhesive and mortar.
- G. Repair methods not specified above may be used, subject to acceptance of ENGINEER.

**3.17 QUALITY CONTROL TESTING DURING CONSTRUCTION**

- A. General: The CONTRACTOR will employ a testing agency to perform tests and to submit test reports, at no additional cost to the OWNER.
- B. Sampling and testing for quality control during concrete placement may include the following, as directed by ENGINEER.
1. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
    - a. Slump: ASTM C 143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.
    - b. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231, pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.
    - c. Concrete Temperature: ASTM C 1064; one test hourly when air temperature

- is 40 deg F (4 deg C) and below, when 80 deg F (27 deg C) and above, and one test for each set of compressive-strength specimens.
- d. Compression Test Specimen: ASTM C 31; one set of four standard cylinders for each compressive-strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cured test specimens are required.
  - e. Compressive-Strength Tests: ASTM C 39; one set for each day's pour exceeding 5 cu. yd. (4 cu. m) plus additional sets for each 50 cu. yd. (38 cu. m) more than the first 25 cu. yd. (19 cu. m) of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.
2. When frequency of testing will provide fewer than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than five are used.
  3. When total quantity of a given class of concrete is less than 50 cu. yd. (38 cu. m), ENGINEER may waive strength testing if adequate evidence of satisfactory strength is provided.
  4. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.
  5. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength and no individual strength test result falls below specified compressive strength by more than 500 psi (3.4 MPa).
- C. Test results will be reported in writing to ENGINEER within 3 days. Reports of compressive strength tests shall contain the Project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.
- D. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.
- E. Additional Tests: The testing agency will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.

END OF SECTION



## SECTION 03310 FLOWABLE FILL CONCRETE

### PART 1 GENERAL

#### 1.1 DESCRIPTION

Flowable fill is a low strength mixture of portland cement, sand, Class F fly ash, and water. It is proportioned to flow under and around the pipe requiring no compaction and little or no finishing. Flowable fill may be used by the CONTRACTOR as backfill material for pipe. When using flowable fill with aluminum pipe, an approved means of separation must be provided, such as bituminous coating.

### PART 2 PRODUCT

#### 2.2 MATERIALS

Ingredient materials shall meet the requirements specified in the following sections of the Standard Specifications:

Portland Cement, Type I	801
Sand	804
Fly Ash, Class F	844
Water	803

The flowable fill shall be initially mixed in the following proportions per cubic yard:

Cement (Minimum)	40 lbs.
Fly Ash	300 lbs.
Sand (SSD)	3000 lbs.
Water (Maximum)	550 lbs.

To expedite settlement of the flowable fill it will be necessary for bleed water to appear on the surface within 5 to 10 minutes after placement. A delay in bleeding indicates there are too many fines in the mixture or insufficient water. If the maximum water was added, the fly ash quantity shall be reduced in increments of 50 lbs. until mixture is bleeding freely. Approximately 60 lbs. of sand shall be added to replace each 50 lbs. increment of fly ash to maintain the original yield. The flowable fill is too dry when cracks develop as it flows into place.

A set of test cylinders shall be cast for each 300 cubic yards of flowable fill. Cylinders shall not be rodded, but the sides of the mold shall be tapped lightly after each layer. The test cylinders should be allowed to bleed for about 30 minutes, refilled, and then covered with a sheet of tough durable impervious plastic. Secure the plastic in place around the

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mold, within one inch of the top, with a rubber band or string prior to covering with wet burlap. Remove the burlap after 24 hours and cure at 60E F to 90E F, in the shade, until 28 days old. Then remove the plastic covering and mold and perform compressive strength test. The average of the 28 days compressive strength tests is expected to be approximately 50 PSI.

## **PART 3 EXECUTION**

### **3.3 CONSTRUCTION**

Flowable fill shall be delivered in a revolving drum truck mixer conforming to Section 601 to insure that the mixture is in suspension when placed. Agitation is required during transportation and waiting time. Subsidence may occur if the mixture is not agitated. Normally, a trench can be backfilled directly from the truck chute or a pump may be used.

The flowable fill may extend from the top of the compacted bedding to the bottom of the pavement structure. Flowable fill shall be a minimum of 2 hours of age prior to the addition and compaction of any material above it.

When flowable fill is used, the CONTRACTOR may reduce the trench width to a minimum of 6 inches clear on each side of the pipe. Standing water in the trench does not have to be pumped out before backfilling with flowable fill.

Certain types of pipe may float, therefore backfilling may have to be done in lifts or else the pipe will need to be anchored. Backfilling in lifts is generally more applicable to long lines of pipe, allowing time for a substantial amount of the water to dissipate prior to applying the next lift. Anchors can be made of small lumber, metal straps, and must be adequately spaced. For larger diameter pipe, it may be possible to maintain a surge of flowable fill on top of the pipe to help prevent floating. Generally floating is not a problem after the level of the backfill is above the springline of the pipe. The CONTRACTOR is responsible to take whatever action is necessary to insure that the pipe remains in the correct horizontal position and at the specified elevation.

END OF SECTION

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**SECTION 11200**  
**Booster Pump Station****PART 1: GENERAL REQUIREMENTS****1.1 SCOPE OF WORK**

The contractor shall furnish and install one (1) - factory built, factory delivered, above-ground water booster pump station/ meter station in a modular building with base frame on a structural base with all necessary internal piping, valves, fittings, supports, meters, control valves, pumps, motors, controls, chemical feed equipment and other necessary appurtenances as shown on the plans and specified herein.

The station shall be complete when delivered and all components shall be pre-wired at the factory. The station shall require internal contractor construction except to install the power service through the service conduit provided for that purpose and to connect the main water service to the required points and other work as may be listed in the Section for CONTRACTORS INSTALLATION REQUIREMENTS.

**1.2 CONTRACTOR INSTALLATION REQUIREMENTS**

The contractor shall be required to provide a crane **and spreader bars** to set the station on the foundation designed by the engineer shown in the plan set. The foundation shall be built by the contractor and as directed by the engineer. Following setting of the station, the contractor will be required to anchor the station to the foundation.

**1.3 MANUFACTURER'S RESPONSIBILITY FOR PERFORMANCE**

The Specifications and Drawings for the Factory-built equipment do not necessarily include all the details for the design and fabrication for the factory-built equipment. The Drawings are generally schematic but the specifications do call out strict requirements to known methods, components and assemblies that must be in a full, complete and functional pumping station. As such, the Manufacturer shall accept and hold complete responsibility for the functionality of the pump station and its workings.

**1.4 BASIS OF DESIGN MANUFACTURER**

The BASIS OF DESIGN station equipment is by Engineered Fluid, Inc. having been deemed to represent the minimum level of quality, performance and service acceptable for this equipment. The station shall be manufactured by Engineered Fluid, Inc. or approved equal. Engineered Fluid, Inc. is represented by Mr. Jason Bivins of JAGS Environmental, telephone 859-342-4944.

**1.5 POST BID SUBMITTAL**

Equipment submittals shall be bound and in a minimum of two (2) electronic copies on CD and or USB Flash Drive. The submittals shall contain a minimum of two (2) full size drawings, size 24" x 36"; one (1) each covering the booster pump station and the electrical control schematic. The booster pump station drawing shall be specific to this project, in at least three (3) different views, be to scale and illustrate the National Electrical Code (NEC) clearances per Section 110-26 of the Code.

The submittal documents will be complete with data sheets covering all major components that make up the booster pump station and the UL/ETL file number under which the manufacturer is listed, service department personnel statement as detailed in the specifications and be complete with the manufacturer's formal warranty policy.

Two (2) submittal reviews of this item will be accomplished at no cost to the submitting contractor. However, all subsequent reviews will be charged to the submitting contractor at the design engineer's standard hourly billing rate.

### **1.6 QUALITY ASSURANCE**

The equipment furnished shall be designed, constructed, and installed in accordance with the best practices and methods and shall operate satisfactorily when installed as shown on the contract drawings and operated per manufacturer's recommendations.

### **1.7 SPECIFIED COMPONENTS**

Within the body of this specification and on the drawings, certain components are listed by name and/or model number for at least One (1) manufacturer's specific product. As such, no "OR EQUAL" is listed or allowed where at least the one manufacturer is listed.

These listed components have been chosen because of the Engineer's and Owner's knowledge of and experience with these listed components.

No other components other than those listed are acceptable.

### **1.8 FACTORY START-UP AND TRAINING SERVICE**

Without exception, the station manufacturer is directly responsible for station start-up and operator training. Third party contractors, agents or representatives are not to be allowed to start up the station nor the equipment therein. As such;

1. Start-up Factory Service Technician shall be a regular employee of the station manufacturer.
2. The booster pumping system manufacturer and controls integrator shall provide two (2) electronic O & M's in pdf format containing as built final system drawings, I/O listings, wiring diagrams, and operating and maintenance information. The submitted manuals shall be sufficient to facilitate the operation, removal, installation, programming, and configuration, adjustment, calibration, testing and maintenance of each and all components and instruments. Final software listings of the operational ladder logic shall be provided herewith.

### **1.9 MANUFACTURER'S WARRANTY**

The warranty is the sole responsibility of the station manufacturer and that manufacturer's warranty shall be provided in written form, being placed in both the Submittal documents covering the specified equipment and the O&M manuals provided with that equipment.

It is required the station warranty provide the Owner with a single source responsibility for all components specified herein and the system as a whole. That single source shall be none other than the station manufacturer. Third party suppliers, service contractors, "Pass-through" warranties and service by the representative are not acceptable.

Said manufacturer's warranty shall at a minimum cover:

1. A period of one (1) year commencing upon successful start-up, after authorized manufacturer's start-up.

2. The warranty period shall be inviolate regardless of any component manufacturer's warranty for equipment and components within the station.
3. The manufacturer's warranty shall cover all equipment, components and systems provided in or with the station by the manufacturer of the station, exclusive of those components supplied by and/or installed by others independent of the manufacturer of record for this station.
4. The warranty shall provide for the station manufacturer to bear the full cost of labor and materials for replacement and/or repair of faulty or defective components so there shall be no cost incurred by the Owner for this work during the warranty period.
5. The manufacturer's warranty policy is amended only by the items considered consumable, i.e., light bulbs, pump seals, pump packing, lubricants and other maintenance items consumed by usage.
6. No assumption of contingent liabilities for any component failure during manufacturer's warranty is made.
7. The warranty pertains only where the equipment has been operated in strict accordance with the manufacturer's instructions and requirements. Evidence of misuse or modification to the equipment voids the warranty.

If the submitted written manufacturer's warranty does not meet the minimum requirements set forth above, that submittal will forthrightly be rejected.

### **1.10 GENERAL LIABILITY INSURANCE**

The water distribution station manufacturer shall furnish premises/operations and products/completed operations general liability insurance from an insurance company with a rating of A-V according to the most recent Best's Key Rating Guide, in an amount equal to \$1,000,000 per occurrence and up to \$11,000,000 total with Umbrella.

The insurance certificate must be included with the manufacturer's submittal. The coverage must be provided by an insurance carrier licensed and admitted in the state of manufacture.

## **PART 2: PRODUCTS AND COMPONENTS**

### **2.1 BUILDING DESIGN CRITERIA**

The station building enclosure shall be a factory assembled, modular structure of one (1) compartment all attached to the station base structure and requiring no additional assembly at the job site.

The building design criteria shall be: (1.) To withstand snow load based on ASCE 7-10 Ground Snow Loads for the state and county of installation (2.) To withstand wind loads based on ASCE 7-10 for wind speeds; (3.) Be designed for site specific seismic requirements based on local conditions as dictated by the Available Ground Motion Parameters according to ASCE 7 and IBC established by zip code and a live floor load of 125 PSF; (4) Be designed to IECC 2012 version of the energy code.

The modular building enclosing each of the stations is shown at its minimum size so that National

Standards mandated clearances are maintained above, below and around equipment for proper and safe servicing, removal and reinstallation of this equipment.

The building specified shall be of the size shown on the drawings. Building sizes less than those shown will not be allowed.

## **2.2 BUILDING CONSTRUCTION**

The materials specified are specifically chosen to be resistant to moisture degradation and infestation and to be maintainable.

Insulation values for the walls and roof structure shall be a minimum R-21 in the walls and the roof. Insulation within the roof and wall panels shall be foam-in-place polyurethane material applied between the interior and exterior sheathing forming a closed cell bounded by the steel framing. The insulation shall have a minimum density of 2.0 lbs/cu. ft. nominal and shall be applied to the thickness required to provide a minimum R value of 21. The insulation shall have an ASTM E-84 flame spread Class 1 < 10 and smoke development Class 1 < 195.

Building framing materials shall comply with the A.I.S.I. Specification for the Design of Cold-formed Steel Structural Members and to Standards ASTM C-955, ASTM C-1007, ASTM C-645, ASTM C-754 and ICBO 4782P. and 4784P. A framing design incorporating the members covered by the listed specifications and standards shall develop a structure meeting or exceeding the building design criteria listed previously.

Metal-clad, foam insulated panels or SIPS will not be allowed.

The building structure shall be fabricated using steel C-studs as wall framing members and C-joists for roof support. The size, placement and spacing of studs and joists shall be in accordance with the design criteria and material standards. The wall C-studs shall be a minimum 2" x 3 5/8" size of 16 gauge material minimum. The roof C-joists shall be a minimum 1-5/8" x 8" size of 16 gauge material minimum.

The exterior wall sheathing shall be 1" thick, 15 psi polystyrene foam board insulation with an R-5 insulative value.

The exterior roof sheathing shall be 5/8" thick, exterior, CDX grade plywood.

The interior wall and ceiling sheathing shall be 3/4" thick, exterior, CDX grade plywood.

All interior wall & ceiling surfaces shall be covered with .090" thick FRP (fiberglass reinforced plastic) sheeting of pebble grain, gloss, white finish. The individual wall faces shall be covered with one continuous sheet. The FRP sheets shall be glued to the sheathing requiring no fasteners. Corner moldings of like FRP material shall be installed & finished in a workmanlike manner.

Openings in the sidewalls and/or roof shall be as shown and be fully framed out and supported using single or multiple framing members sufficient to support and fasten those devices or equipment items requiring a framed opening, these being access hatches, HVAC equipment, pipe passages, conduit passages, door and window openings and other special purpose openings as might be shown and required. The attaching of devices or equipment to the building at a framed opening shall be done fully according to the device manufacturers mounting instructions.

The building shall be warranted by the station manufacturer for a period of ten (10) years from the date of delivery.

### **2.3 HEAVY DUTY STEEL DOORS**

Doors, single and double leaf and of the size shown, are manufactured of 18-gauge galvanealed steel. All doors shall be full flush construction and 1-3/4 inches thick. Doors shall be reinforced, stiffened, insulated, and sound deadened with a solid polystyrene foam board permanently bonded to the inside of each face skin. The lock and hinge edge of each door shall be welded with a center hairline seam the full height of the door. The lock edge shall be reinforced full height by a 14-gauge continuous one-piece channel extruded templating. The hinge edge shall be reinforced full height by a 14-gauge continuous one-piece channel, formed and tapped for hinges. Top and bottom of the door shall be closed with 16-gauge channels. Doors shall be thoroughly cleaned and receive an iron phosphate treatment prior to receiving one coat of prime paint. Door closures and rim panics are reinforced with 14-gauge channels.

Doors shall be fully-mounted in frames produced for pre-hanging of commercial 1-3/4" doors. Frames are formed to 16-gauge commercial quality cold rolled steel conforming to ASTM A366 or A620 and A568. Frames are produced in two welded units, to be mechanically joined during installation. The base side is prepared for all required hardware. Both units, base and trim, are furnished with welded mitered faces. Frame anchoring includes compression anchors and stud screws. Door hinges shall be continuous gear hinges, fabricated of extruded 6063-T6 aluminum alloy/temper with pinless assembly. The doors shall have a lockset, exterior handle, and top mounted-door closer with hold-open device.

Doors and frames shall be finished with a two-component, aliphatic/acrylic polyurethane coating, white in color, with a high gloss finish. The coating shall be resistant to a wide range of solvents and chemicals under splash and spill conditions. The coating system is V.O.C. compliant.

Door sizes and locations are as shown on the drawings.

### **2.4 MOUNTING AND FASTENING**

The building shall be fabricated up from and securely attached to a framework fabricated of 2" x 6" steel tubing welded at each corner to form a base frame serving as a stable base for handling and transporting the building prior to attaching the building to the station base skid. To hold the building framing to the 2" x 6" base frame, 5/8" anchor studs will be welded to the base frame. In assembling the building framing to the base frame a 3 1/4" x 4" x 1/4" thick anchor plate under a flat washer, lock washer and 5/8" nut shall be used to fasten the building framing to the framing base as shown. The base frame shall be grit blasted to a SP-6 finish and coated with the specified coating material.

The building enclosure shall be firmly and securely attached to the steel base structure by lag bolting from inside the station, through evenly spaced 9/32" holes pre-drilled into a 2" by 1-1/2" by 1/8" thick angle piece that has been continuously welded to the steel floor. The lag bolts shall screw into the 2" x 6"(8") tubular base frame upon which the building has been built.

The lag bolts shall be plated steel, size 5/16" diameter x 2" long. The number and location of the lag bolts shall be as determined by structural analysis so as to maintain the live load and wind load ratings as specified and to resist shearing and tearing in the process of transporting and placing the finished station.

## **2.5 EXTERIOR FINISH – FAUX BRICK PANELS**

The station manufacturer shall apply at the factory and prior to shipment fabricated veneer panels with an exterior face in a running bond pattern of clay brick finish.

Brick finish shall be manufactured of polypropylene. Pattern to be running bond similar to face brick color unless otherwise specified. All material shall be obtained from one source.

The panel thickness shall be 0.090" and shall be approximately 44' wide by 19" high.

ASTM Test Designations:

ASTM D-5206-096 (Wind): Avg. test pressure 78.33 psf

ASTM D-696 (Linear Thermal Expansion): 3/64" per 30 deg. F.

ASTM D-635 (Burn Rate Classification): CC2

ASTM E-84 (Flame Spread Index): <200

The panels shall be installed according to the manufacturers Installation Guide with the necessary accessories recommended by the manufacturer.

The manufacturer shall provide a ten (10) year warranty from date of purchase against defective materials or workmanship.

## **2.6 METAL ROOF SYSTEM**

The roof sheathing shall be covered with a 26 gauge metal panel system to form a standing seam roof as shown. The panels shall have a Galvalume® substrate with a Kynar 500® finish. The panels shall meet UL Standard 2218, Class 4 impact resistant and Class A fire resistant rating. The system shall be complete with fascia and soffit. The minimum roof slope shall be 3:12.

The ridgeline of the roof shall be covered end to end with a broken edge panel open along the sides to create a roof vent along both sides of the entire ridge line. The top of the broken edge panel along the ridge line shall cover over the top of the standing seams to provide a finished appearance.

## **2.7 FACTORY INSTALLED TRUSSED ROOF SYSTEM**

The building manufacturer shall provide Wooden roof trusses, plywood sheathing, underlaying felt to be factory applied and be covered by the finished roof surface which shall be factory applied to the building to form a gabled roof system as shown.

When installed, the trusses shall be covered by 1/2" thick C-C Grade plywood. The selected roof material shall be called out in these specifications

When required, the roof structure shall include the roof hatches being built into the roof field by the station manufacturer using the same materials as specified above.

Metal Facia and Soffits shall be installed on the building by the building manufacturer. These materials for the facia and soffit shall be complimentary in color and texture and approved by the Engineer.

A ridge line, metal airvent system shall be installed as a part of the roof.

For review by the Engineer-of-Record, the roof system shall be designed and stamped by a Registered Professional Engineer in the State of Kentucky and provided with the equipment



submittals.

## **2.8 BRIDGE CRANE SYSTEM SUPPORTS**

The supports for the bridge crane running beams shall be attached into the building structure or shall be supported by structural steel, vertical columns placed along the sidewalls in sufficient numbers to fully support the bridge crane structure and any lifted load at any point within the building.

## **2.9 TRAVELING BRIDGE, CHAIN HOIST & TROLLEY**

The hoist shall be rated for 2,000 lbs. with 10' of lift. A Weston-type load brake shall be supplied that requires no lubrication. To minimize jamming and slipping, the hoist shall be supplied with hand wheel covers with guide slots. The chain will be hardened. The hook shall be forged steel, equipped with a safety latch and swivel.

The trolley shall be manufactured of high quality rolled steel. The wheels shall be double row, ball bearing design for greater wear capacity. The bearings shall be pre-packed with lifetime lubricant and protected with dust covers. The trolley shall quickly adapt to a wide range of beams with the "Dial-Fit" collar system. The trolley beam shall be a "W4x13" flange steel I-beam conforming to ASTM-A36 standards.

## **2.10 REGISTERED PROFESSIONAL ENGINEER REVIEW**

The base substructure, building and the bridge crane system and the means of attaching the building to the foundation shall be reviewed and stamped by a Kentucky Registered Professional Engineer.

## **2.11 BUILDING SUBSTRUCTURE**

The base/floor system substructure shall be made up of steel plate and standard structural steel shapes of the sizes and weights sufficient to bear the loading placed on the base by shipping and operation.

The substructure shall be designed to support the building live and dead loads plus the burden imposed by loading, transporting and unloading of this equipment.

All steel plates used in the substructure shall meet or exceed the requirements of ASTM-A36. The structural shapes (channels and angles) shall be of the thickness/weight as shown on the plans for this item and shall meet or exceed the requirements for ASTM A-36. The structural rectangular or square tubing shall be of the wall gauge as shown on the plans for this item and shall meet or exceed the requirements for ASTM A-500 Grade B.

On the substructure on the floor plate, indented approximately 6"/8", there shall be welded a 1-1/2" x 2" x 1/8" steel angle iron with drilled holes. This angle steel piece shall be the bracket through which the building is attached to the base substructure.

## **2.12 FLOORDRAIN**

The station shall have floor drains as shown on the drawing.

The floor drains shall be a 4" grated opening with 4" I.D threaded hub for connection of a drain line up under the station floor.

**2.13 PIPING FLOOR PENETRATIONS**

Where suction and discharge piping, or any other pressure piping, passes through the station floor plate and base sub-structure, that area of the floor shall be provided with a grout sleeve made up of steel pipe of 9" height and of sufficient annular diameter to pass a full size pipe flange for the pipe size shown.

The steel sleeve shall be welded into the floor plate with a 1" projection above the floor in the station. Following installation of the inlet and outlet pipes, the installing contractor shall be responsible for furnishing and installing grout to close the opening around the installed pipe.

**2.14 SAFETY FLOOR MATTING**

The walkway areas (that space from the entrance ladder to the control panel and the entire NEC clearance area) shall be covered with a rubber drainage runner. The runner shall be medium duty, 1/2 inch minimum thickness of open slot design allowing fluids to drain understanding or walking surfaces. The runner shall have a tread design to promote sure footing. The underside of the runner shall have a raise knob design to permit aeration and drainage, and to reduce runner fatigue. The runner shall not be glued to the floor.

**2.15 PUMP OPERATING CONDITIONS - PUMP STATION**

The pump station shall be capable of delivering the fluid medium at the following capacities and heads when operating at 0 feet minimum suction pressure.

PUMPS #1, #2

The pumps shall be Close Coupled End Suction by Cornell as Model 4RB.

Design Point: 725 GPM @ 130 feet TDH;  
Maximum Point: 1300 GPM @ 75 feet TDH;  
NPSHr: 10 feet;  
Suction Pressure: 60-80 PSI;  
Discharge Pressure: 117 PSI;  
Pump Efficiency at Design Point: 81%  
Pump Power: Non-overloading for 40 rated h.p.  
Motor Speed: 1800 rpm nominal.  
Electrical Power: 480 volt 3 phase, 60 cycle.

**2.16 PUMPS – CLOSE COUPLED HORIZONTAL END SUCTION, CENTRIFUGAL**

The pumps employed within the pump station shall be of the close coupled, horizontal end suction, centrifugal configuration.

The pumps shall be of close grain cast iron construction complete with bronze trim. The pumps shall conform to the detailed specifications as set forth below:

The pumps shall be Volute style with the pump casing bolted to adapter, with recessed lock fit to insure alignment. No stud or bolt holes are tapped through casing to liquid ways. Tapping openings provided for priming, venting, draining and suction and discharge gauge connections. Piping connection are to be as shown on the pump data sheets.

Impellers are to be single suction type, cast in one piece. All impellers are to be statically balanced to

insure smooth operation, also hydraulically balanced except in some small sizes where end thrust is but a minor factor.

Wearing rings shall be renewable, be set on both the impeller and body and be set maintain proper running clearance with impeller hubs to minimize leakage between the suction and discharge.

Shaft sleeves shall be shouldered onto the shaft near impeller to cover the full length of shaft from impeller hub to motor end bracket by being in compression over the shaft protecting shaft from contact with liquid.

The stuffing box shall be cast integral with the pump casing. The stuffing box shall contain a single face type mechanical seal. The seal shall have a carbon rotating head against a Ni-Resist stationary face and be complete with a Buna-N boot with stainless steel spring and spring retainer.

The motor adaptor shall maintain a rigid, bolted, registered assembly between motor and the casing by a machined lock between adapter and motor end bracket keeping the adapter and casing in permanent alignment with motor and motor shaft.

Motor configuration shall be as a close-coupled assembled as an integral part of the complete units. The extended motor shaft carries the impeller and shaft sleeve. Motor bearings are ball bearing type, designed to carry all radial and thrust loads, and are installed in sealed housings which retain lubricant and exclude dirt and moisture.

## **2.17 PUMP/MOTOR VIBRATION ISOLATION PADS**

The pump/motor assembly shall be mounted to a fabricated steel base built specifically for the pump/motor to be mounted. Each mounting or attachment point shall be complete with a vibration isolation pad. The pad will be in two (2) parts, a 1/4" base layer followed by a 5/8" upper layer and be a nominal 2" x 2" square size for pump/motor combinations weighing up to 1500 pounds.

## **2.18 PUMP SUPPORT STANDS**

The pump support stands shall be structural steel C-channel, standard weight or steel plate bent to form a channel. The bent steel plate shall be of sufficient thickness to support the pump and motor. A plate or channel shall be welded between the pump supports to form an "H" configuration for rigidity. The base of the legs shall be continuously welded to the steel floor.

## **2.19 PUMP MOTOR CONFIGURATION**

The pump driver shall be a NEMA Design B, three phase, alternating current, (squirrel cage) induction motor, continuous duty rated, with motor insulation as Class F for Class B Heat Rise.

Motor efficiencies shall be Premium Efficient as stated in NEMA MG 1, 2011 Part 12, Table 12-12 for the motor enclosure, open or closed.

Motor Service factor shall be 1.15 on the nameplate, reduced to 1.0 when used with variable frequency drives per NEMA MG 1 – 2011, Part 31.3.7.

The motor enclosure shall be Open Drip Proof (ODP).

Motors of 600 volts or less shall meet the requirements of NEMA MG 1 2011 Part 31.4.4.2 for ability

to sustain voltage spikes when used with variable frequency drives under usual conditions

These motors are for use with variable frequency drives.

## **2.18 PIPING-TRANSMISSION – STEEL PIPE**

Piping 3 inches in diameter and above shall be steel and conform to material specification ASTM A-53(CW) for nominal pipe size four (4) inch and smaller and ASTM A-53(ERW) Grade B for nominal pipe size five (5) inches and larger. Steel butt-welding fittings shall conform to material specification ASTM A-234 Grade WPB and to the dimensions and tolerances of ANSI Standards B16.9 and B16.28 respectively.

Forged steel flanges shall conform to material specification ASTM A-105 Class 60 and/or ASTM A-181 for carbon steel forgings and to the dimensions and tolerances of ANSI Standards B16.5 as amended in 1992 for Class 150 and Class 300 flanges.

The piping sizes shall be as shown on the drawing.

Size 10 inch and below - Schedule 40

Size 12 inch thru 20 inch - Standard weight (.375" wall)

Size 24 inch and above - Standard weight (.500" wall)

## **2.19 PIPE WELDING**

All pipe welds shall be performed by certified welders employed by the pump station manufacturer. As part of the equipment submittal, the pump station manufacturer shall provide copies of the welding certificates of the employees who are to perform the pipe welds.

Shop welders shall be certified in accordance with ASME BPVC Section IX or AWS D1.1. Certification shall be done by an independent testing laboratory giving certification for the weld positions for which the tests were performed.

## **2.20 PIPE SURFACE PREPARATION**

All piping inside and outside surfaces shall be prepared by grit blasting, or other abrasive blasting, prior to any welds taking place to minimum SP-6 finish.

## **2.21 PIPE CUTTING**

Piping of 4" diameter and smaller may be cut by saw.

Piping of 6" diameter and larger shall be bevel cut, and Oxyfuel or Plasma-arc cutting techniques shall be used to assure and facilitate bevel pipe cuts.

## **2.22 SADDLE CUTS AND WELDS**

Saddle cuts in pipe made in preparation for a saddle weld of a pipe at an angle to a pipe shall be made with numerically controlled, plasma cutting machines. Similarly, saddle end cuts to pipes to make a saddle mating piece shall be done with the same numerically controlled plasma cutting equipment.

When the two saddle cut pieces are mated and welded with the MIG process, the internal finished weld shall be smooth and free of inclusions, crevices and other corrosion sites.

## **2.23 PIPE WELDING TECHNIQUES**

Pipe welds shall be performed by metal added, inert gas shielded arc welding (MIG) techniques wherein the weld heat settings, the wire feed speed and the traverse speed of the work below the welding are numerically set to assure proper weld fusion and penetration and repeatable welds.

In all cases, short circuit transfer, spray transfer or pulse-arc transfer modes of the gas metal arc welding process shall be used.

When utilizing the short circuit mode, shielding gas consisting of 50% carbon dioxide and 50% argon gas shall be used. When utilizing the spray or pulse-arc transfer modes, a shielding gas consisting of 5% carbon dioxide and 95% argon shall be used.

In all cases, welding wire with a minimum tensile strength of 70,000 psi shall be employed.

All flange welds and butt welds of equal size pipe shall be a single continuous nonstop weld around the complete circumference of the pipe. Whenever possible, vertical up weld passes will be applied to all pipe welds. No vertical down weld passes will be allowed.

Completed pipe welded assemblies shall create no internal obstruction, restriction or create any unintended sources of water deflection.

Piping of six (6) inch diameter and larger shall require a minimum of two (2) weld passes to complete each weld. The first pass, or root pass, shall be applied at the bottom of the bevel cut using the short circuit transfer welding mode, and the second pass, or cap pass, shall be applied over the root pass using the spray or pulse arc transfer welding modes to insure that at a minimum the total weld thickness shall be equal to thinnest of the two pieces being welded together.

The pipe shall be sand blasted, as specified elsewhere, before pipe weld and after pipe weld, before fusion bonded epoxy is applied.

## **2.24 WELD STANDOFFS**

No welding shall be performed on fusion bonded coated piping after the coating process has been performed.

Where any piping is to be welded after the application of fusion bonded epoxy coating to the inside of the pipe, at the point of the weld, a weld standoff must be welded to the pipe prior to the coating. The weld shall be made to the standoff and not onto the pipe.

## **2.25 TANK/WALL PENETRATION COATING PROTECTION SLEEVE**

Where a fusion bonded epoxy interior coated pipe passes through the steel tank shell or a steel wall section, prior to fusion bonded coating of that pipe, a pipe sleeve shall be welded over the pipe in the area where the pipe passes through the steel sheet.

The sleeve shall be one-half (1/2") inch thickness and fit closely over the transmission pipe. The sleeve shall be seal welded to the transmission pipe at each end with a full and continuous fillet weld.

Following the welding of the sleeve to the transmission piping, the sleeve welds and the sleeve shall be grit blasted to an SP-6 finish so the pipe is prepared for fusion bonded epoxy coating by the process specified elsewhere in these documents.

## **2.26 PIPE SUPPORTS**

Pipe supports by minimum sizing for:

- 8" and smaller piping shall be 2" x 3" x 3/16" wall rectangular tubing;
- 10" and larger piping shall be 3" x 4" x 1/4" wall rectangular tubing;
- 6" and larger piping shall be provided with "kick" bracing projecting fully from the underside of the pipe to the floor at an angle of no less than 15E from vertical out at a right angle to the run of the pipe being supported. These "kick" braces shall be in addition to the vertical pipe supports called out above.

Pipe supports are to be fully welded at both end points to the pipe and steel floor where required.

Where components are to be supported and may require disassembly at some time, the supports for these components shall be welded at the bottom and bolted at the top by use of a bolt yoke welded to the top of the support and bolted into the flange connection picking up at least three bolts.

## **2.27 RISER PIPE VERTICAL SUPPORTS**

All of the inlet and outlet vertical riser pipes shall be provided each with, two (2) structural steel, angle pipe support welded to the weldment plates on the vertical riser pipe to down to the floor. These supports shall be opposed by at least 120 degrees around the pipe. The minimum member size for these supports shall be 3" x 4" x 1/4" tubular steel.

## **2.28 FUSION BONDED EPOXY INTERNAL PIPE COATING**

The internal surfaces of piping to be fusion bonded coated shall be grit blasted to an SP-10 finish with the finish profile required by the coating material manufacturer.

The internal, wetted surfaces of the steel transmission piping shall have applied to it a Fusion Bonded Epoxy Coating on the interior pipe surface. The coating shall be applied and meet the testing requirements of Table 1 and Table 2 with the exception of Table 2 section 7 per AWWA C-213.

The powder coating product shall be National Sanitation Foundation (NSF) Standard 61 certified material.

Prior to shipment of the station, the station manufacturer shall provide in writing to the Engineer certification that the fusion bonded epoxy coating has been applied to all internal surfaces of the steel piping using the proper method. Said certification shall show under the station manufacturer's letterhead:

- Date of application;
- Material manufacturer and product designation including a product data sheet for the coating;
- Applier of the fusion bonded coating, name, address and phone number;
- Notarized signature of an officer of the station manufacturing company stating the fusion bonded epoxy coating was applied to AWWA Standard C213-91 or the latest revision.

**2.29 COATINGS - CORROSION PROTECTION**

All interior and exterior surfaces of the exposed steel structure, transmission piping, and fittings shall be gritblasted equal to commercial blast cleaning (SSPC-SP6). Following fabrication all exposed surfaces of the station, interior and exterior, shall be coated according to the following requirements.

**2.30 WELDMENT PRIME COATING**

All weldments will be pretreated by hand to provide additional corrosion protection using the same product as the base coat. Following the pretreatment full coating application shall take place.

**2.31 BASE COATING**

The base coating shall take place immediately after surface preparation. The protective coating shall consist of a two-component, high solids, high build, fast drying epoxy system for protection and finishing of steel and having excellent corrosion resistant properties. The epoxy system shall be self-priming and require no intermediate coatings.

**2.32 TOP COATING**

Following the base coating application, a full finish coating application shall take place. The protective coating shall consist of a two-component, high solids, high build, fast drying epoxy system for protection and finishing of steel and having excellent corrosion resistant properties. The epoxy system shall be self-priming and require no intermediate coatings. The base and finish coats shall provide a total dry mil thickness of 8.0 mils. The finish shall be "flint gray" in color.

**2.33 POST-ASSEMBLY COATING**

Following assembly and just prior to shipping, there shall take place a thorough cleaning of the floor of the station followed by a rolled on coating of the two part epoxy coating to cover over any scuffing or scaring that might have occurred during assembly.

**2.34 FLOOR COATING AND CORROSION PROTECTION SYSTEM**

The exposed surfaces of the structural steel base shall have a non-skid coating of a two-component, 100% high performance aromatic polyurea spray elastomer system with zero VOC (Volatile Organic Compounds), 100% solid. The coating shall offer outstanding performance and superior elastomeric protection for various substrates. The coating shall be designed as a user-friendly product for moisture insensitive applications because of its pure polyurea chemistry, and offer exceptional adhesion properties for properly prepared substrates. The high performance formulation shall produce an excellent skin formation for chemical resistance and moisture protection. The coating shall be dark gray in color.

Both the Iso "A" Side and Resin "B" Side shall be preconditioned between 70-90°F before application. Iso "A" and Polyol "B" components must be pumped by low-pressure transfer pumps to a suitable high-pressure proportional pumping system.

Temperature Settings:

Iso "A" Block Heater:	140-160°F
Resin "B" Block Heater:	140-160°F
Hoses (Iso and Polyol)	140-150°F

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Booster Pump Station

Equipment Hydraulic Pressure: 2,000-2,500PSI

**CHEMICAL TECHNICAL DATA:**

Mix Ratio by Volume: Gel Time: 1A:1B 6-9 Sec  
 Tack Free Time: 9-12 Sec  
 Viscosity (cps) @ 77°F  
 "A" Iso Side: 1,000±100  
 "B" Resin Side: 370±50  
 Material Density (lbs/gal) @ 77°F "A" "A"  
 Iso Side: 9.5 lbs/gal  
 "B" Resin Side: 8.4 lbs/gal.

**BASIC PHYSICAL PROPERTIES:**

All tests are performed by OCM Test Laboratories.

- ISO 17025 Certified
- American Association for Laboratory Accreditation (A2LA)

Test Name	Test Methods	Value
Hardness Shore D	ASTM D2240	60±1
Coefficient of Friction	ASTM D1894	
Static		0.305
Kinetic		0.127
Dielectric Const.	ASTM D150	3.6
Dissipation Factor	ASTM D150	0.031
Volume Resistance	ASTM D257	2.3x10 <sup>14</sup> ohm cm
Elongation	ASTM D412	162%
Flexural Strength ASTM D790		2,630 PSI
Flexural Modulus	ASTM D790	0.056 MSI
Fungus Test	MIL-STD 810F	Pass
Pull-off Test–Adhesion	ASTM C297	
To Metal – No Primer		1,800 PSI
To Metal – XPM Primer		1,910 PSI
To Metal – LXSF515 Primer		1,870 PSI
Taber Abrasion	ASTM D4060	0.06980
(gm Loss/1000 cycles)		
Tear Strength	ASTM D624	783 ppi
Tensile Strength	ASTM D412	3,432 PSI
Water Vapor Trans.	ASTM E96	0.499 Grains/Hr Sq.Ft.

The chemical resistance testing for the coating shall be per ASTM D543 for immersion in fluids methods. Additional product certifications shall include USFDA Coatings for Incidental Food Contact Applications Certified by Keller and Heckman LLP and MIL-STD-810F.

**2.35 SERVICE CONNECTIONS ON INTERNAL PIPING**

All plumbed devices within the station eventually requiring service, such as meters, control valves, pumps and like equipment, shall be easily removed from the piping by the presence of appropriately placed and sufficient quantity of adaptors and couplings as shown on the drawings; no less than the quantity of couplings and adaptors shown shall be allowed.

**2.36 RESTRAINING POINTS**

The main inlet and outlet piping to the station shall each be provided with two (2)/four (4) restraining



points as welded on "eyes" or similar device welded to the underside of the base structure framing as shown to facilitate the attachment of joint restraint tie rods or other device to be used in retarding any pipe movement at the connections.

### **2.37 COMPRESSION COUPLINGS**

The station piping shall include a variety of compression type, flexible coupling to prevent binding and facilitate removal of associated equipment. These couplings are to be where shown on the plans. In lieu of a compression coupling, a flanged coupling adapter (FCA) may be used.

Grooved fittings may not be used under any circumstance.

All compression couplings or flanged coupling adapters (FCA), and flexible connectors/expansion joints shall include a minimum of two (2) zinc coated steel threaded rods across the joint with appropriate bolted restraining points.

### **2.38 ELASTOMER PIPE CONNECTOR**

The inlet side of each booster pump shall include an elastomer connector to help isolate vibration and noise in the piping system. The elastomer connector shall be of single sphere design, constructed of neoprene and nylon with bias-ply tire reinforcing cord to provide a 225 psi working pressure rating to a minimum of 120 degrees F. The elastomer connector shall pass through the plate steel flanges designed to grip the connector so the connector seals without gaskets when the flange bolts are drawn up.

A control joint limiting pipe connector movement shall be supplied with each pipe connector.

### **2.39 LINE PRESSURE GAUGES**

Combination pressure gauges shall have a built-in pressure snubber and have 4-1/2" minimum diameter faces and turret style case, black fiberglass-reinforced thermoplastic with a clear acrylic window with Buna-N gasket. The movement shall be rotary; the bourdon tube shall be copper alloy C-type. The gauge shall have a 1/4" MNPT lower mount process connection and contain a 0.6mm copper alloy restrictor. Combination pressure gauge range and scale graduations shall be in psi and feet of water as follows:

Gauge ranges shall be established by the Engineer for each of the suction and discharge gauges for each pump station.

All gauges will be panel mounted off the pipeline and be connected to their respective sensing point. The gauge trim tubing shall be complete with both isolating and vent valves and the tubing shall be so arranged as to easily vent air and facilitate gauge removal. Gauges mounted directly to the pipeline or at the sensing point will not be accepted.

Gauge ranges, markings and gauge location shall be identified in the submittal documents.

### **2.40 STATIC AND SENSING LINES**

All gauge, switch and transmitter sensing lines shall be minimum 1/4" OD white polypropylene tubing run from the sensing point and a ball valve to the point of device mounting.

The pilot tubing shall be run in a workmanlike manner with elastomeric/stainless steel mounting straps to securely hold the tubing to be free of stress and vibration. The alignment and organization of the sensing lines shall be continuously rising.

#### **2.41 SAMPLE TAP**

A single, right angle outlet, smooth nose, brass sample tap shall be affixed to the manual vent ball valve for the low suction lockout and suction pressure gauge assembly.

#### **2.42 HOSE BIBB WITH VACUUM BREAKER**

There shall be provided a standard hose bibb with valve and vacuum breaker on the suction piping. The hose bibb connection shall be through a pressure regulator if the header pressure would exceed 60 psi.

#### **2.43 BALL VALVES**

The ball valves will be 2-piece, full-port design with blow-out proof stem. The seats, packing and seal shall be PTFE. Ball valves shall be provided with an adjustable stem packing nut. The body and retainer shall be lead free brass (DZR). The ball shall be lead free brass (DZR), chrome plated for sizes 1/4"-1" and 316SS for sizes 1-1/4"-4". The handle shall have a distinctive white "lead free" handle grip and blue "lead free" hanging tag. The valves will be NPTxNPT threaded pattern. Maximum working pressure shall be 600 psi up to 2" and 400 PSI for sizes 2-1/2" to 4".

#### **2.44 BUTTERFLY VALVES**

Valve body shall be one-piece wafer or lug design with extended neck to allow for 2" of piping insulation. Flange locating holes shall be provided on wafer bodies to allow for quick and precise alignment during valve installation. Flange hole drilling per international flange standard as specified.

A non-corrosive bushing and a self-adjusting stem seal shall be provided. No field adjustment shall be necessary to maintain optimum field performance.

The disc edge and hub on metal discs shall be spherically machined and hand polished for torque and maximum sealing capability. Disc shall be Nylon 11 coated ductile iron.

The stem shall be one-piece design. Disc to stem connection shall be an internal double "D" design with no possible leak paths in the disc-to-stem connection. External disc-to-stem connections such as disc screws or pins are not allowed. Stem shall be mechanically retained in the body neck and no part of the stem shall be exposed to the line media.

The seat shall be tongue-and-groove seat with a primary hub seal and a molded flange O-ring for weld-neck and slip-on flanges. The seat shall totally encapsulate the body isolating it from the line media and no flange gaskets shall be required. The valve shall be rated for bubble-tight shut-off at pressures of 175 PSI for 2"-12" and 150 PSI for 14"-20".

Valve manufacturer:

- A. Bray Series 30/31
- B. Keystone 221/222

#### **2.45 MANUAL VALVE ACTUATORS**

Manually operated butterfly valves size 6" and smaller shall be equipped with lever style operators

capable of withstanding 450 ft. lbs. of input torque and mounted to the valve trunnion with 4 bolts.

Manually operated butterfly valves size 8" and larger shall be equipped with travelling nut style handwheel operators capable of withstanding 450 ft. lbs. of input torque and mounted to the valve trunnion with 4 bolts.

#### **2.46 SILENT CHECK VALVES – WAFER STYLE**

Silent check valves shall be wafer style, non-slam and made to set between ANSI Class 125 flanges.

Sizes shall be as shown. (2" – 10")

The body of the check valve shall be cast iron. The plug and seat shall be bronze and conform to ASTM Designation B-584. The seat shall contain a Buna-N seal to provide zero leakage. The seal design shall provide for both a metal to metal low and high pressure without over-loading or damaging the Buna-N seal. The guide bushings shall be bronze copper alloy and conform to ASTM Designation B-584. The valve spring and seat retainers shall be stainless steel and conform to ASTM Designation A-313. The valve plug shall be guided at both ends by a center shaft integral with the valve plug. Alignment of the center shaft shall be provided by guide bushings.

Silent Check Valve manufacturer:

- A. Val-Matic Model 1400
- B. APCO Series 300A

#### **2.47 GATE VALVES**

Gate Valves shall conform to the latest version of AWWA Standard C-515 covering Resilient Seated Gate Valves for Water Supply Service.

The valves shall be 150# flanged with a ductile iron body and bonnet. The wedge shall be totally encapsulated with rubber. The sealing rubber shall be permanently bonded to the wedge to meet ASTM tests for rubber metal bond ATSM D249. Working pressure for valve sizes 2"-12" shall be 250 PSI.

Valves shall be supplied with O-Ring seals at all joints. No flat gaskets shall be allowed.

The valves shall be non-rising, opening by turning left to right. The handwheel shall have the "Open" and an arrow cast in the metal to indicate the direction to open.

Stems for NRS assemblies shall be cast bronze with integral collars in full compliance with AWWA. The stem shall operate with bronze stem nuts, independent of stem. The stem shall have (2) O-Rings located above thrust collar and (1) O-Ring below. O-Rings shall be replaceable with valve fully opened and subjected to full pressure. Stems shall also have (2) low torque thrust bearings located above and below stem collar to reduce friction during operation.

Waterway shall be smooth, unobstructed and free of all pockets, cavities and depressions in the seat area.

The body, bonnet and stuffing plate shall be coated with fusion bonded epoxy, both interior and exterior on body and bonnet. Epoxy shall be applied in accordance with AWWA C550 and be NSF61

and NSF372 certified.

Each valve shall have a maker's name, pressure rating, and year in which it was manufactured cast in the body. Prior to shipment from the factory, each valve shall be tested by hydrostatic pressure equal to requirements of AWWA.

Valves shall have all brass components cast and assembled in the USA.

Valve manufacturer:

- A. Kennedy Valve
- B. M&H
- C. Clow

#### **2.48 ISOLATING GATE VALVE**

The isolating valve as shown shall be a full ported gate valve meeting the requirements of AWWA C-515. The body, bonnet, wedge and seal plate shall be ductile iron in accordance with ASTM A536. The wedge shall be totally encapsulated in rubber. The rubber coating shall be permanently bonded to the ductile iron wedge casting and shall meet ASTM D429 tests for rubber to metal bonding. No paint shall be allowed in the wedge and the wedge must not be hollow. All gaskets shall be O-ring seals. All fasteners are to be 304 stainless steel. The body, bonnet and seal plate shall be epoxy coated in accordance with ANSI/AWWA C550 certified to NSF 61. The coating shall be on the interior and exterior of the valve.

The valves are to be non-rising stem with handwheel operator, opening left.

The valve body shall be flanged and drilled to ANSI B16.1, Class 125.

Valve maximum working pressure rating shall be 250 psi.

Valve manufacturer:

- D. East Jordan 23000 (FlowMaster)
- E. M&H 4067-02
- F. Mueller A-2360-6

#### **2.49 HYDRAULIC ACTUATED CONTROL VALVES - GENERAL**

The valve configuration as shown shall be hydraulically operated, single diaphragm actuated. The valve shall consist of three major components: the body with seat installed, the cover with bearing installed, and the diaphragm assembly. The diaphragm assembly shall be the only moving part and shall form a sealed chamber in the upper portion of the valve, separating operating pressure from line pressure. Packing glands and/or stuffing boxes are not permitted and there shall be no pistons operating the main valve or pilot controls. Valve body and cover shall be epoxy coated. The stainless steel seat with integral bearing shall be of the solid, one piece design.

The diaphragm assembly shall contain a non-magnetic stainless steel stem of sufficient diameter to withstand high hydraulic pressures. The stem shall be fully guided through its complete stroke by a removable bearing in the valve cover and an integral bearing in the valve seat. No center guides shall be permitted. The stem shall be drilled and tapped in the cover end to receive and affix such accessories as may be deemed necessary.

The flexible, non-wicking, FDA approved diaphragm shall consist of nylon fabric bonded with synthetic rubber compatible with the operating fluid. The diaphragm shall be fully supported in the valve body and cover by machined surfaces which support no less than one-half of the total surface area of the diaphragm in either the fully open or fully closed position.

The pilot control system shall include CK2 isolation valves.

The pilot system shall include a closing speed control on all valves.

Pilot controlled sensing shall be upstream of the pilot system strainer so accurate control may be maintained if the strainer is partially blocked.

The pressure relief pilot shall be a direct-acting, adjustable, spring-loaded, diaphragm valve designed to permit flow when controlling pressure exceeds in the adjustable spring setting. The pilot control is normally held closed by the force of the compression on the spring above the diaphragm and it opens when the pressure acting on the underside of the diaphragm exceeds the spring setting. The pressure relief valve shall be supplied with the Dura-Kleen® stem (KD option).

The Control Valve shall be a Cla-Val Model 50-01.

## **2.50 MAGNETIC FLOW METER**

### General

Electromagnetic flow meters for permanent installations both above and below ground. The meters shall utilize bipolar pulse DC coil excitation to measure voltage induced by the flow of conductive liquid through a magnetic flux. The voltage shall be linearly proportional to flow velocity from 0.033 to 33 feet per second.

### Sensor

The sensor shall consist of a stainless steel flow tube with ANSI Class150 B16.5 or AWWA C207 carbon steel or stainless steel flanges.

The sensor liner and electrode material shall be chosen to be compatible with the process fluid. All fluids require a minimum conductivity of 5 $\mu$ S/cm (20 $\mu$ S/cm for deionized water).

The sensor tube shall be lined with polyurethane, hard rubber, or PTFE based upon the size of the flow meter and the process media conditions. NSF-61 shall be available as option.

The sensor shall house two measuring electrodes, a grounding electrode, and one for physical empty pipe detection. The electrodes shall be bullet-nosed shaped and made of 316L SS or Alloy C22 (listed by the application and instrument schedule).

The sensor shall be rated for NEMA 4X service as standard; Optional NEMA6/IP67 for temporary immersion or NEMA6P/IP68 for permanent immersion.

### Transmitter

The transmitter shall be a three-stage microprocessor controller mounted integrally or remotely as specified in the instrument schedule. The transmitter shall incorporate a universal 100-240 VAC/18-30 VDC power supply. The transmitter housing will carry a NEMA 4X rating and shall be constructed to prevent moisture ingress, promote corrosion resistance, and be impervious to saline environments.

The transmitter display shall indicate simultaneous flow rate and total flow with 3 totalizers (forward, reverse and net total) and user-selectable engineering units and readout of diagnostic error messages.

The Transmitter output shall be specified as either 4-20mA HART; 0-20mA, pulse/frequency/switch; Modbus RS-485, Profibus DP, or EtherNet/IP

The transmitter shall support commissioning options through a device driver-less operation via an internal web server accessible through a standard RJ-45 Ethernet port or a WLAN (Wireless Local Area Network) connection as specified.

The transmitter shall include an onboard method to verify flow meter performance to the original manufacturer specifications without the use of external handhelds, interfaces, or special tooling.

#### Installation

The sensor shall house two measuring electrodes, a grounding electrode, and one for physical empty pipe detection. The electrodes shall be bullet-nosed shaped and made of 316L SS or Alloy C22. Straight run requirements are 5 diameters upstream and 2 diameters downstream to maintain laminar flow and full specified accuracy.

Sensor shall have optional unrestricted mounting magnetic flowmeter sensor for applications without the typical inlet/outlet straight pipe run requirements. The full bore magnetic flowmeter in sizes 1"-12" shall maintain zero pressure loss while achieving 0.5% of rate accuracy.

The Inline Magnetic Flow Meter shall be an – Endress+Hauser Promag W400

#### **2.51 METER TEST PORT**

The meter installation shall be complete with a meter test port as shown on the plans for this item. The test port shall consist of a NPT coupling in the pipe downstream of the meter capable of accommodating a threaded by hose connection adapter. The connection shall be plugged.

#### **2.52 PRESSURE TESTING**

When the station plumbing is completed, the pressure piping within the station (including valves, pumps, control valves, and fittings), connections as make up the entire system shall be hydrostatically tested at a pressure of 150 psi or a pressure equal to the lowest test pressure rating of the equipment within the tested system, whichever is lesser pressure. The test pressure shall be applied for a minimum of 20 minutes, during which time all joints, connections and seams shall be checked for leaking. Any deficiencies found shall be repaired and the system shall be retested.

The results of this testing shall be transmitted in writing to the Engineer prior to shipment of the station and shall note test pressure, time at full pressure and be signed by the Quality Control Manager or test technician.

#### **2.53 ELECTRICAL DESIGN, ASSEMBLY & TEST**

The electrical apparatus and control panel design, assembly, and installation, and the integration of component parts will be the responsibility of the manufacturer of record for this booster pumping equipment. That manufacturer shall maintain at his regular place of business a complete electrical design, assembly and test facility to assure continuity of electrical design with equipment application. Control panels designed, assembled or tested at other than the regular production facilities or by other than the regular production employees of the manufacturer of record for this booster pumping equipment will not be approved.

## **2.54 CONFORMANCE TO BASIC ELECTRICAL STANDARDS**

The manufacturer of electrical control panels and their mounting and installation shall be done in strict accordance with the requirements of UL Standard 508A and the National Electrical Code (NEC), NFPA 70 latest revision so as to afford a measure of security as to the ability of the eventual owner to safely operate the equipment.

No exceptions to the requirements of these codes and standards will be allowed; failure to meet these requirements will be cause to remove the equipment and correct the violation.

## **2.55 U.L. LISTING**

All service entrance, power distribution, control and starting equipment panels shall be constructed and installed in strict accordance with Underwriter's Laboratories (cUL) Standard 508A "Industrial Control Equipment." The cUL label shall also include an SE "Service Entrance" rating stating that the main distribution panel is suitable for use as service entrance equipment. The panels shall be shop inspected by cUL, or constructed in a cUL recognized facility. All panels shall bear a serialized cUL label indicating acceptance under Standard 508A and under Enclosed Industrial Control Panel or Service Equipment Panel.

## **2.56 E.T.L. LISTING**

All control panels shall be E.T.L. Listed by Interek Testing Services (ITS) under the Industrial Control Panel (ICP) Category. Each completed control panel shall bear an ETL listing label stating that the panel conforms to UL STD 508A and is certified to CAN/CSA STD C22.2 NO. 14. The listing label shall include the station manufacturer's name, address and telephone number. The station manufacturer shall have quarterly inspections performed by ETL at the manufacturer's facility to ensure that the products being listed comply with the report and procedural guide for that product.

## **2.57 EQUIPMENT GROUNDING**

Each electrical equipment item in the station shall be properly grounded per Section 250 of the National Electrical Code. Items to be grounded include, but are not limited to, pump motor frames, control panel, transformer, convenience receptacles, dedicated receptacle for heater, air conditioner, dehumidifier, lights, light switch, exhaust fans and pressure switches.

All ground wires from installed equipment shall be in conduit and shall lead back to the control panel to a copper ground buss specific for grounding purposes and so labeled. The ground buss shall be complete with a lug large enough to accept the installing electrician's bare copper earth ground wire. The bus shall serve as a bond between the earth ground and the equipment ground wires.

## **2.58 PANEL MOUNTING HARDWARE**

Metal framing channel and hangers shall be used exclusively for mounting of electrical panels and electrical components except for those specifically designated otherwise.

When mounting panels in buildings with ¾" plywood interior sheathing, certain panels and components may be mounted by screwing these devices into the wall. The maximum weight of a panel mounted with four lag screws cannot exceed 250#. The lag screws must either be 5/16" or 3/8" diameter and be fully threaded.

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**2.59 ELECTRICAL SERVICE**

The electrical service provided for this station will be 480Y/277 volt, 3 phase, 60 Hertz, 4 wire.

**2.60 ELECTRICAL DISTRIBUTION PANEL**

The distribution panel shall be a single section, bolt-on panelboard, surface mount, SE rated, NEMA 1 enclosure for three phase, four wire, 480Y/277 VAC Wye power and with aluminum bus. Circuit Breakers are rated for 35 KAIC.

The main circuit breaker shall be rated for 250 amp service.

The distribution panel shall be complete with the following branch circuit breakers:

One (1) 3-pole,	250 amp Main Breaker;
Two (2) 3-pole,	90 amp Pump Motor Breakers;
One (1) 3-pole,	30 amp Surge Protection Device Breaker
One (1) 3-pole,	15 amp Phase Monitor Breaker;
One (1) 2-pole,	30 amp Primary Transformer Breaker.

Nameplates will be provided in etched phenolic.

**2.61 SECONDARY CIRCUIT BREAKER (LIGHTING) PANEL**

The lighting panel shall be a single section, bolt-on panelboard, surface mount, NEMA 1 enclosure for single phase, three wire, 240/120 VAC power and with aluminum bus. Circuit Breakers are rated for 10 KAIC.

There shall be provided, thermal-magnetic trip circuit breakers as follows:

One (1) Transformer Breaker, Secondary Side, 60 amps;

Auxiliary Circuit Breakers, as follows:

1. 1-pole, 15amp Controls
2. 1-pole, 15amp Telemetry
3. 1-pole, 15amp Lights
4. 1-pole, 15amp Convenience Outlets
5. 1-pole, 15amp Dehumidifier
6. 1-pole, 15amp Spare
7. 1-pole, 15amp Spare
8. 1-pole, 20amp Spare
9. 1-pole, 20amp Spare

**2.62 ELECTRICAL APPARATUS - CONTROL PANEL**

The low suction protection circuitry, timing relays, control relays shall be incorporated into one (1) NEMA 1 control panel.

**2.63 ELECTRICAL APPARATUS - ADJUSTABLE FREQUENCY DRIVES**

This specification is to cover a complete Variable Frequency Drive (VFD aka: VFD, AFD, ASD, Inverter, AC Drive, et al) designed for use with a standard AC induction motor in water and



wastewater applications. The VFD must provide a V/Hz or sensor-less vector mode of operation.

The VFD package as specified herein shall be UL61800-5-1 listed and CSA C.22.2 No. 274-17 listed as a complete assembly. The VFD shall be furnished in an UL Type 1 (NEMA 1) listed enclosure rated as specified for operation at ambient temperatures between  $-15^{\circ}\text{C}$  and  $40^{\circ}\text{C}$  at an altitude not exceeding 3300 feet, with relative humidity less than 95% and no condensation allowed.

The VFD tolerated voltage window shall allow the VFD to operate from a line of +30% nominal, and -35% nominal voltage as a minimum. The VFD efficiency shall be 96.5% or better at full speed and load. The VFD shall have a DC bus voltage controller to automatically maintain the DC bus levels in high or low line conditions for the purpose of maintaining full motor voltage at all times. The short term normal duty overload current capacity shall be 110% of rated current for one (1) minute out of ten (10) minutes

All VFDs shall have the same customer interface, including digital display, and keypad, regardless of horsepower rating. The keypad shall be removable, capable of remote mounting and allow for uploading and downloading of parameter settings as an aid for start-up of multiple VFDs. Control connections shall remain consistent for all power ratings

The control panel shall include Hand-Off-Auto selections and manual speed control. The drive shall incorporate "bump-less transfer" of speed reference when switching between "Auto" and "Hand" modes. There shall be a possibility to reset the VFD from the control panel. The control panel shall include a backlit LCD. The display shall be in complete words, in a language selectable by the user, for programming and fault diagnostics (alphanumeric fault codes are not acceptable). The control panel shall have a real-time clock with battery backup for adding time stamps to events, faults, warnings and also timer functions utilizing real-time clock. There shall be an editable home-view in the control panel to allow different customer specific configurations.

A dedicated "Help" button shall be available on the control panel. The Help button shall provide context sensitive assistance for programming and troubleshooting. The control panel shall provide interactive assistants (wizards) to help to commission and use the drive.

The control panel shall provide a clear, interactive, context sensitive menu based user interface to make it easy to adjust the settings of the drive. The control panel shall provide an easy to use I/O menu, where the user can see the status and function of all the analog and digital inputs and outputs. The control panel shall have a menu, which contains diagnostic data about the drive operation collected in one single location. The data shall include data about active faults, warnings and events. In addition the data shall contain a summary of VFD active control sources.

The user shall be able to take a screen capture snapshot of the display with the control panel and be able to download the screen capture for user's computer for further purposes. The user shall be able to connect a PC tool with a USB cable to the control panel to be able to set up and control the VFD. It shall be possible to connect the USB cable without using any tools.

The VFD shall have 2 quick ramps that allow for quick acceleration and/or deceleration of the pump motor.

The VFD shall offer a pump cleaning feature to reduce build-up of debris on the pump impeller. This feature can be activated by: Every start or Stop, when drive is in a underload / overload condition, timed interval or digital input. The cleaning cycle status shall be visible in the panel screen when cleaning is active. The VFD shall operate normally after the cleaning cycle is completed.

The VFD shall offer torque boost for applications where increased torque is needed for initial starting of the pump motor.

The VFD shall have intelligent pump control (IPC) with multi-pump functionality and an intelligent master/follower configuration for controlling up to 8 parallel pumps equipped with VFDs without additional modules. VFD shall have a parameter synchronization feature to program the PID, IPC and AI parameters in all parallel VFDs. The Functionality to start and stop the pumps based on capacity, operating time or efficiency of the pump to ensure each pump is operated regularly. The IPC shall be capable of level control, flow control, pressure control and pump alternation.

The VFD shall have soft pipe filling functionality, can be used to fill an empty pipe, by having programmable pipe fill time.

The VFD shall have a programmable Sleep functionality for PID control in pumping systems to stop the pump during low demand. "Sleep Boost" shall be available to reduce short cycling of the pump. The boost function will boost the pressure or water level before the pump shuts down to sleep.

The VFD shall provide a PLC kind programming capability as standard. It shall be possible to use different kinds of arithmetic, logical, selection, comparison and operation function blocks to monitor and control the VFD, functions, inputs, outputs and variables. There shall be a possibility to run different kinds of function block programs in different states and to set the criteria, when to change the state.

Real-time clock and calendar shall be available as standard for giving true time and date information to fault event history. The real-time clock should have a minimum of 10 years power-off back-up without optional components. Back-up battery shall be replaceable without opening the VFD enclosure. Real time clock shall be possible to use with timed functions, which shall allow controlling the VFD and its functions based on time of the day, day of the week, seasons of the year, holiday periods and holiday dates and special working periods and working days.

Timed functions should be possible to use for starting and stopping the drive, for selecting the speed reference, for selecting the PID loop controller's set-point, for controlling the relay outputs, for selection the control location, for giving the run permissive or interlock signal to the VFD, etc. There shall be also a boost function, which allows starting the VFD and/or its functions regardless, time of the day, day of the week, seasons or holidays.

The VFD shall be capable of controlling an induction motor, permanent magnet motor and synchronous reluctance motors as standard. Have a maximum allowed motor cable length 1000 feet (300 meters). The VFD shall commission an induction motor, permanent magnet motor and synchronous reluctance motor with the motor nameplate values only, without the need to get the motor values from other sources.

Scalar and vector control modes shall be supported and there shall be independent control chains and parameters for both of the motor control modes.

The overload rating of the VFD shall be 110% of its rated normal duty current for 1 minute every 10 minutes and with a minimum of 130% for 2 seconds every 1 minute. Overload ability shall be available at all times - not only at start.

The VFD shall be capable of sensing the loss of load (broken belt / broken coupling / dry pump) and signal the loss of load condition. The drive shall be possible to be programmed to signal this condition via a control panel warning, relay output and/or over the serial communications.

Relay outputs shall include programmable for on/off time delays that will allow for drive acceleration or deceleration to and from zero speed, without signaling a false underload condition.

It shall be possible to disconnect a motor running full speed by opening an optional contactor between motor and VFD without causing any damage to the VFD.

The VFD shall include a standard embedded functional safety feature Safe Torque Off, (STO), to make the motor mechanically safe.

The VFD shall include an energy optimization circuit (flux optimization) that will automatically reduce applied motor voltage to the motor to reduce energy consumption by up to 10% and lower audible motor noise.

The VFD shall be capable of starting into a spinning load (forward or reverse) up to full speed and accelerate or decelerate to a set-point (flying start) without tripping or component damage.

The VFD shall restart after a power loss without the need to resend the start command. This feature shall be there regardless of the control source, control panel, I/O or fieldbus.

Flux braking shall be available, where the VFD controls the motor to dissipate the extra rotary energy as heat whenever braking is required. It shall be possible to use this flux braking feature to decelerate the motor from one speed to another – not only for stopping the motor.

Power-Loss-Ride-Through shall be programmable. If the incoming supply voltage is cut off, the VFD continues to operate using the kinetic energy of the rotating motor. The drive continues to be operational as long as the motor rotates and generates energy.

The VFD shall include a switching frequency control function. This adjusts the switching or carrier frequency, based on actual VFD temperature and allows the highest carrier frequency without de-rating the VFD or operating at high carrier frequency only at low speeds (temperature fold-back). It shall be possible to set a minimum and a reference switching frequency.

The VFD shall include a noise smoothing function, which distributes the acoustic motor noise over a range of frequencies instead of a single tonal frequency resulting in lower peak noise intensity.

The VFD shall have three (3) programmable critical frequency or critical speed lockout ranges to prevent the VFD from operating the load continuously on an undesirable speed range (skip frequencies)

All I/O terminals shall be color coded to simplify wiring and troubleshooting, and shall have a special mode for testing I/O and the drive configuration without being connected to equipment. All I/O shall be accessible (monitor and control) for fieldbus protocols (pass-through I/O). It shall be possible to monitor status of the I/O from VFDs control panel.

The VFD shall have at least two (2) programmable analog inputs. Both inputs shall accept current (0 to 20 mA or 4 to 20mA) or voltage (0 to 10 VDC) signals. The signal type selection, voltage or current, shall be made via VFD user interface. DIP-switches or jumpers are not allowed for input type programming. Analog Input shall have an inaccuracy of  $\leq 1\%$  of full scale in both current and voltage modes.

The analog inputs shall be programmable to be used as: speed reference, frequency reference, pressure monitor, PID loop controller's set-point reference or signal feedback, or other defined inputs.

If the analog input reference (4 to 20 mA or 2 to 10 VDC) is lost, the VFD shall give the user the option of: (1) stopping and displaying a fault; (2) running at a programmable preset speed and

displaying an alarm; (3) hold the VFD speed based on the last good reference received and displaying an alarm. The drive shall be programmable to signal this condition via a control panel warning, relay output and/or over the serial communication bus.

The VFD shall have at least two (2) programmable analog outputs (0 to 20 mA or 4 to 20 mA) out of which one shall be software configurable to be either voltage (0 to 10 VDC) or current output. Analog Output shall have an inaccuracy of  $\leq 1\%$  of full scale in both current and voltage modes. The analog outputs shall be programmable to give an output signal proportional to frequency, motor speed, output voltage, output current, motor torque, motor power, DC bus voltage, active reference or other defined data.

The VFD shall have at least six (6) programmable digital inputs (24 VAC and 12 to 24 VDC, PNP or 5 pcs NPN) to connect to external devices, as follows:

- a. All inputs can be configurable for PTC sensors.
- b. There shall be a programmable run permissive circuit.
- c. Up to four (4) programmable free text interlock inputs shall be available.
- d. The VFD shall have at least one digital input which can be configured to receive a pulse signal up to 16 kHz.

The VFD shall have at least three (3) programmable digital Form-C relay (changeover) outputs. The relays shall include programmable on and off delay times and adjustable hysteresis.

The VFD shall have an EIA-485 (RS-485) port for serial communications as standard. The VFD shall be equipped with built-in fieldbus communication of type Modbus RTU. EtherNet/IP, Modbus/TCP, DeviceNet, PROFIBUS-DP, PROFINET protocols shall be available as plug-in and inbuilt options.

The VFD shall have an integral 5% impedance line reactors to reduce the harmonics to the power line and to add protection from AC line transients. The 5% impedance may be from dual (positive and negative DC buss) reactors, or 5% AC line reactors. VFDs with only one DC reactor shall add AC line reactors.

All VFDs through 50 HP shall be protected from input and output power mis-wiring. The VFD shall sense this condition and display an alarm on the keypad.

THE VARIABLE FREQUENCY DRIVE UNITS SHALL BE ABB MODEL ACQ580.

## **2.64 DRIVE FUSE PROTECTION**

There shall be provided fuse protection in accordance with the drive manufacturer's installation guidelines and as required in UL61800-5-1.

## **2.59 ELECTRICAL POWER TRANSFORMER**

Balanced 115/230 single phase power for the auxiliary circuits within the scope of each booster station shall be obtained by use of a 10 KVA dry, step down transformer. The transformer shall be wall mounting type, in a NEMA 3R non-ventilated weatherproof enclosure. Transformer shall operate with noise levels equal to or less than ANSI and NEMA standards. Transformer insulation shall be Class 180c.

The transformer shall meet the most recent standards for efficiency.

The unit shall be "UL" approved for indoor/outdoor application.

## **2.60 TELEMETRY CONTROL INTERFACE PANEL**

It will be the responsibility of the station manufacturer to provide the following as an adjunct to the supplied telemetry equipment.

1. 1" telemetry entrance conduit complete to telemetry panel.
2. Size 12" x 12" NEMA 1 telemetry interface panel.
3. Separate 120 volt single phase power circuit in conduit to the telemetry interface panel.
4. Telemetry control circuits made up and in conduit from main control panel to telemetry interface panel terminal strip.
5. Metal framing channel to mount telemetry equipment.

## **2.61 ALARMS CONDITION AND OUTPUTS**

The following alarms/status points shall be included within the booster pump station and wired back to the interface panel:

1. Provide indication as to the ATUO position of the HAND-OFF-AUTOMATIC selector switches on the pumps.
2. Water Within Station - The water alarm shall be a 120 volt AC circuit driven by a float switch wall-mounted within the equipment building. The float switch shall be of the magnetic float type with the float moving up and down a guide tube. One half (1/2) inch of float movement shall actuate the SPST reed type switch inside the guide tube. The switch shall be so mounted that when water reaches a point one (1) inch above the floor switch will activate the alarm.
3. Unauthorized entry alarms on hatches and doors - The unauthorized entry alarm shall be driven by a door-mounted limit switch. The limit switch shall be the adjustable arm, roller contactor type which makes an internal SPST micro switch. The switch will be so mounted as to active anytime the entrance man way door is opened.
4. Pump Motor Starter Failure – There shall be logic provided for detection, indication and alarm of the failure of the motor starter/controller.
5. Phase fail/power status alarm – The phase fail alarm shall be provided by 120 volt AC relay.
6. Low Suction Pressure alarm – The low suction pressure alarm shall be provided by the low suction lockout pressure switch as described elsewhere.
7. Fire/Smoke alarm – The fire/smoke alarm shall be provided by a fire/smoke detector in the station as an input to the logic.
8. High Station Temperature Alarm – The station high temperature alarm shall be provided by a thermostat in the station.
9. Low Temperature Alarm – The station low temperature alarm shall be provided by a thermostat in the station.

**2.62 PUMP MOTOR RUN TIME METER**

The control panel shall contain one running time meter supplied for each pump to show the cumulative number of hours of operation.

The meter shall be enclosed in a dust and moisture proof molded plastic case, suitable for flush mounting on the main control panel.

The meter dial shall register in hours and tenths of hours up to 99999.9 hours before repeating.

The meter shall be suitable for operation from a 115 volt, 60 cycle supply.

**2.63 ELECTRICAL PHASE MONITOR**

A **phase monitor** shall be supplied to protect three-phase equipment against phase loss, undervoltage and phase reversal conditions.

When a fault is sensed, the monitor output relay opens within two seconds or less to turn the equipment off and/or cause an audio or visual alarm. Both Delta and Wye systems may be monitored. The monitor shall have an automatic reset and shall also include an adjustable voltage delay.

The monitor shall have an indicator LED (glows when all conditions are normal and shall monitor phase sequence: ABC operate (will not operate CBA). The phase monitor shall be UL approved and CSA certified.

**2.64 SURGE PROTECTION DEVICE**

A secondary surge arrester shall be provided. Housing shall be Noryl and be ultrasonically sealed. Valve blocks shall be metal oxide with an insulating ceramic collar. Gap design shall be annular. The lead wire shall be permanently crimped to the upper electrode forming part of the gap structure.

Arresters shall be UL and CSA listed Lightning Protective Devices.

**2.65 ELECTRICAL CONDUIT AND WIRING**

All service entrance conduits power and signal, shall be rigid steel conduit, individually sized to accept the inbound service conductors and telemetry/telephone/radio cables.

These service entrance conduits are installed by the installing contractor through the provided conduit cutout in the building floor. The exterior conduit cutouts shall be capped or plugged for shipment.

All wiring within the equipment enclosure and outside of the panel enclosures shall be run in conduit except where watertight flexible conduit is properly used to connect pump motors, fan motors, transformers, solenoid valves, limit switches, etc., where flexible connections are best utilized.

Devices and appliances where furnished by the original manufacturer and being equipped with a UL approved rubber cord and plug, may be plugged into a receptacle.

Equipment enclosure conduits shall be Schedule 40 PVC with solvent weld moisture-proof connections in minimum size 3/4" or larger, sized to handle the type, number and size of equipment conductors to be carried.

The conduiting shall be in compliance with Article 347 of the National Electrical Code and NEMA

TC-2, Federal WC-1094A and UL-651 Underwriters Laboratory Specifications.

Where flexible conduit connections are necessary, the conduit used shall be Liquid-tight, flexible, totally nonmetallic, corrosion resistant, nonconductive, U.L. listed conduit sized to handle the type, number and size of equipment conductors to be carried - in compliance with Article 351 of the National Electrical Code.

Motor circuit conductors shall be sized for load. All branch circuit conductors supplying a single motor of one (1) horsepower or more shall have an ampacity of not less than 125 percent of the motor full load current rating, dual rated type THHN/THWN, as set forth in Article 310 and 430-B of the National Electrical Code, Schedule 310-13 for flame retardant, heat resistant thermoplastic, copper conductors in a nylon or equivalent outer covering.

Control and accessory wiring shall be sized for load, type MTW/AWM (Machine tool wire/appliance wiring material) as set forth in Article 310 and 670 of the National Electrical Code, Schedule 310-13 and NFPA Standard 79 for flame retardant, moisture, heat and oil resistant thermoplastic, copper conductors in compliance with NTMA and as listed by Underwriters Laboratories (AWM), except where accessories are furnished with a manufacturer supplied UL approved rubber cord and plug.

## **2.66 GAUGE PRESSURE TRANSMITTERS**

Pressure transmitters shall be supplied to measure pump station suction and discharge pressure. The transmitters shall sense gauge pressure and transmit a 4-20 mA dc signal. The instruments shall measure pressure of a predetermined span. Range is to be fixed at 0-600 PSI. The accuracy shall be  $\leq \pm 0.05\%$  of span.

Each transmitter shall provide an analog output and include a standard LCD with touch control and bluetooth to provide Intelligent transmitter. The one-line digital indicator shall display the measurement in any selected units.

All process-wetted parts of each instrument shall be Type 316L stainless steel. The transmitter shall be protected by a gasketed, weatherproof IP66 and IP68 enclosure.

The transmitter shall have 1/4 inch NPT female threaded tapping ports.

Gauge Pressure Transmitter manufacturer:

Endress Hauser PMP71B.

## **2.67 DISCRETE SUCTION PRESSURE CONTROL**

Separate from the control logic suction control of the pumping operation shall be provided by a bellows type, adjustable differential pressure switch. The switch shall be complete with a single pole, double throw contact block with 5 amp non-inductive rated contacts at 230 volts AC. The set points of the on/off cycle shall be independently adjustable through the full range of the switch rating.

1. Low Suction Cut-out, 4-150 psi.
- 1A. Adjustable Differential, 2-25 psi.

A pressure gauge shall be sub-panel mounted adjacent to the low suction pressure switch. The

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gauge and switch shall be so plumbed with the suction header sensing line that a common blow off valve can relieve pressure in both simultaneously for purposes of checking and calibrating the low suction lock-out.

## **2.68 ELECTRICAL DEVICES**

Multi-position switches including Hand-Off-Automatic switches shall be oil tight, 3-position maintained and be located on the main control panel door.

Indicating lights shall be oil tight, with a full voltage, LED pilot light.

Nameplates shall be furnished on all panel front mounted switches and lights.

Switches, lights and pushbuttons shall be Schneider Electric, Series XB, 22 mm, Die Cast Chrome plated devices. Pilot lights shall be with protected LED's for 120 Vac operation as XB4BVG, pushbuttons shall be non-illuminated, momentary contact, extended lens as ZB4BL and the switches shall be 2 position maintained, 2 position right-to-left, 3 position maintained, 3 position momentary-to-center, 3 position momentary from left to center, and 3 position momentary from right to center with standard black lever as ZB4BD.

### Switches

1. Pump #1 Hand-Off-Auto, 3-position;
2. Pump #2 Hand-Off-Auto, 3-position;
3. Pump #1 Telemetry-Test, 2-position;
4. Pump #2 Telemetry-Test, 2-position;

### Lights

1. Red – Low Suction Pressure;
2. Green – Pump #1 in Operation;
3. Green – Pump #2 in Operation;
4. Red – Pump #1 Failure;
5. Red – Pump #2 Failure;

The solid state time delay relay shall have an adjustable time range of 10 seconds to 10 minutes. The relays shall be constructed to use a DIN rail mount socket so that the relays can be replaced without disturbing the wiring. The relay shall be complete with LED indicators for output and power.

### Time Delay Relays

1. Low Suction Alarm On Delay Timer
2. Low Suction Alarm Reset Delay Timer
3. Lead Pump Start Delay Timer
4. Lead Pump Stop Delay Timer
5. Lag 1 Pump Start Delay Timer
6. Lag 1 Pump Stop Delay Timer

The control panel door shall be complete on the interior with a stick-on transparency containing an "as-built" reproduction of the electrical control panel schematic. The wiring diagram shall be a corrected "as-built" copy & contain individual wire numbers, circuit breaker numbers, switch designation & control function explanations.



**2.69 STATION EXTERIOR LIGHTING**

An exterior light shall be provided as located on the drawing. The light shall be 20 watt LED, 5K color, and 1532 lumens. Housing shall be one piece, injection molded, bronze polycarbonate. A button type photo control shall be provided

**2.70 STATION INTERIOR LIGHTING**

There shall be one or more forty eight (48) inch minimum length LED light fixtures installed within the equipment enclosure, as shown on the plan for this item. The fixture shall be 120/277VAC, 6000 lumens minimum with a medium distribution lens, 4K color temp, and be UL Listed for a wet environment. The light switch shall be of the night glow type and be located conveniently adjacent to the door.

Open fixtures will not be accepted.

**2.71 HEATING/COOLING/EXHAUST UNIT**

The unit shall be two-piece, wall-mounted, factory-assembled, pre-charged, prewired, tested and ready-to-operate mini split heat pump system. The unit shall have a limited warranty of 10-years on parts. One (1) each exterior wall mounted compressor, hard-wired as shown;

1. One (1) each interior wall mounted air handler. Hard wired as shown;
2. Remote adjustable thermostat;
3. Refrigerant: 410A (HFC);
4. Minimum EER Rating: 9.10
5. 2 Ton Capacity

**2.72 DEHUMIDIFIERS**

1. One (1) each, installed as shown.
2. Capacity 30 pints per 24 hours.
3. Compressor rated 115 volts, 60 Hz, 4.3 operating amps.
4. 106 CFM fan, 2 fan speed.
5. Humidity range 35 to 80% RH, ambient temperature range of 41 to 95 F, Type R410A refrigerant.
6. Washable filter.
7. Condensate piped direct to drain.
8. UL listed rubber cord.

END OF SECTION

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**SECTION 16050**  
**Basic Electrical Materials and Methods**

**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 Materials and Methods and General Requirements, the above mentioned documents shall overrule this section. The Basic Electrical Materials and Methods 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 the 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 OF WORK**

- A. Work included in this section of the Specifications shall include the furnishings of all labor, material, tools, approvals, utility connection fees, excavation, backfill, 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. The Contractor shall furnish and install all conduit, wire miscellaneous material to make all electrical connections to all items of utilization equipment to wiring devices except as otherwise specified.
- D. 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.
- E. All devices and items of equipment mentioned in this section of the Specifications whether electrical or not whether furnished under this or other Division of the Specifications shall be installed under this Division of the Specifications, unless specifically indicated otherwise.
- F. 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.
- G. 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 work to be performed under this Contract: Connect all motors and accessories furnished by equipment suppliers.

1. Furnish, install, and connect all utility poles, line wire, and hardware.
2. Furnish, install, and connect all electrical conduit.
3. Install and connect power distribution equipment.
4. Install and connect automatic transfer switch.

### **1.03 SHOP DRAWINGS, DESCRIPTIVE LITERATURE, INSTALLATION, OPERATION AND MAINTENANCE INFORMATION**

- A. Shop Drawings including descriptive literature and/or installation, operation and maintenance instructions shall be submitted in accordance with Division 1.
- B. Shop Drawings shall be submitted on the following materials specified in Division.
  1. Conduit.
  2. Metal framing system (Strut type channel).
  3. Conduit fittings, support hardware.
  4. Wire.
  5. Utility pole and hardware
  6. Automatic transfer switch
  7. Utility meter base
  8. Load break disconnect switch.
- C. The Engineers reserves the right to make modifications to motor control and power distribution equipment ratings after Shop Drawings 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 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 and/or connections.

### **1.05 CODES**

- A. The minimum standard for all work shall be the latest revision of the Kentucky Building code (KBC), 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:
 

a. Uniform Building Code	UBC
b. Kentucky Building Code	KBC
c. National Electrical Code	NEC
d. Factory Mutual System	FM
e. National Fire Protection Association	NFPA
f. National Electrical Manufacturers Association	NEMA
g. Occupational Safety and Health Administration	OSHA
h. Insulated Cable Engineers Association, Inc.	ICEA

i. Illuminating Engineering Society of North America	IES
j. Instrument Society of America	ISA
k. Institute of Electrical and Electronic Engineers, Inc.	IEEE
l. Certified Ballast Manufacturers Association	CMB
m. American National Standards Institution, Inc.	ANSI
n. Anti-Friction Bearing Manufacturers Association, Inc.	AFBMA
o. Joint Industry Council	JIC
p. American Society of Heating, Refrigerating And Air Conditioning Engineers, Inc.	ASHRAE
q. Federal Communications Commission	FCC
r. American Society for Testing and Materials	ASTM
s. American Wood Preservers Association	AWPA
t. Rural Electrification Association	REA

### 1.06 **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. The Contractor shall notify the electrical inspector in writing, immediately upon notice to proceed, and a copy of the notice shall be submitted to the Engineers.
- B. 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.

### 1.07 **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 transfer switch, delivered to 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.

### 1.08 **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.

- C. 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.
- D. The reuse of salvaged electrical equipment and/or wiring will not be permitted unless specified herein or indicated on the Contract Drawings.
- E. 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.

#### **1.09 ERRORS, CORRECTIONS, AND/OR OMISSIONS**

- A. 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.
- B. Necessary changes or revisions in electrical work to meet any code or power company requirement shall be made by the Contractor without additional charge.

#### **1.10 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. Date of acceptance shall be considered to be the date on which all "punch list" items are completed ("punch list" 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.

#### **1.11 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. He shall obtain all necessary

clearances, approvals, and instructions from the serving utility company and/or equipment manufacturers prior to placing power on the equipment.

- C. Tests may be performed by the Engineer to determine integrity of insulation on wiring circuits selected by the Engineer at random.
- D. Cost of utilities for testing done prior to beneficial occupancy by the Owner shall be borne by the Contractor.

#### **1.12 CLEANUP**

- A. Cleanup shall be completed as soon as possible after the electrical installation is complete. 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.

#### **1.13 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. Where conduit is in solid rock, a 6 inch earth cushion must be provided. Conduit shall be laid in straight lines 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 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 2 inches in diameter. Above this, large rocks may be included but must be mixed with sufficient earth to fill all voids.

#### **1.14 POWER COMPANY COORDINATION**

- A. The Contractor is responsible for coordinating all activities onsite by the power company. It is the Contractor's responsibility to contact the power company to schedule service installation and/or modifications.
- B. All power company metering equipment shall be electrically located "upstream" of any 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.

#### **1.15 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. Temporary power is also addressed in Division1.

**1.16 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.

**1.17 RELATED SPECIFICATION DIVISIONS**

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 - Site work

Division 11 - Equipment

**1.18 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.
- 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.

**1.19 CONTRACTOR LICENSING**

- A. The Contractor performing the 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 and comply with same.

**1.20 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, the Contractor shall be sure that all supports are consistent with the KBC requirements in this regard.

**PART 2 - PRODUCTS**

Not Applicable.

**PART 3 - EXECUTION**

Not Applicable.

END OF SECTION-16050



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**SECTION 16060**  
**Secondary Grounding**

**PART 1 - GENERAL**

**1.01 SCOPE OF WORK**

- A. Grounding shall be done in accordance with the NEC, as described in these Specifications, and as shown on the Contract Documents.

**PART 2 - PRODUCTS**

**2.01 ACCEPTABLE MANUFACTURERS**

- A. Grounding equipment shall be Cadweld, Thomas and Betts, or equal.

**PART 3 - EXECUTION**

**3.01 INSTALLATION/APPLICATION/ERECTION**

- A. Grounding shall utilize a supplemental driven ground rod system in a bed to achieve the design ground resistance.
- B. The ground system shall be continuous with all structures on a common ground. This can be accomplished by bonding all conduits together and bonding to the ground bus at each electrical equipment. A separate grounding conductor shall be pulled in all conduits in addition to wire counts shown on Drawings.
- C. Ground rods shall be (3/4"x10'-0") copper clad type. Where multiple rods are driven, they shall be separated by at least 10 feet to assure maximum effect.
- D. Ground resistance between ground and absolute earth shall not exceed 5 ohms.
- E. All grounding and grounding electrode systems shall be as required by the NEC as for types of electrodes utilized and sizing of grounding conductor to service equipment from the electrode system. These shall include footer rebar, buried metal water pipe, buried bare copper conductor, etc.
- F. All grounding electrode system connections shall be made using exothermic welds, Cadweld, or equal. No splices are allowed in the grounding electrode conductor.
- G. Should ground rods be impractical for use due to rocky conditions, then grounding electrode plates may be used after acceptance by the Engineer on a case by case basis.

**3.02 FIELD QUALITY CONTROL**

- A. Testing
  - a. The Contractor shall be required to provide all labor, tools, instruments, and

materials as necessary to perform testing of the grounding electrode system. Results shall be submitted in writing to the Engineer. The testing shall be done to determine the effectiveness of the selected grounding scheme and to see that it conforms with resistance specified (5 ohms maximum).

- b. The testing should be done using a fall-of-potential method test at the point of grounding electrode conductor connection to main power distribution equipment and at each separately derived system. The test shall be performed no sooner than 48 hours after a rainfall event.
- c. The written report should contain the following information:
  1. Type of ground scheme used, i.e., building steel, driven rod, mat, etc.
  2. Type of instrument used.
    - i. Manufacturer
    - ii. Model Number
    - iii. Confirm fall-of-potential test
    - iv. Serial Number\*
    - v. Where instrument was obtained\*

\*These 2 items are required so that the same instrument may be utilized should reproduction of the test be necessary due to unsatisfactory readings/instrument miscalibration.

3. Ground resistance readings obtained at various test distances.
4. Ground resistance/distance curve.
5. Value of Grounding Electrode Resistance at knee of curve.
6. Sketch showing setup of instrumentation and location of grounding electrode and test probes.
7. Proposed method to achieve the specified resistance, should an unacceptable reading be obtained.
8. Ground resistance readings obtained (if applicable) after modifications incorporated.

END OF SECTION-16060

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**SECTION 16070**  
**Supporting Devices**

**PART 1 - GENERAL**

**1.01 SCOPE OF WORK**

- A. All electric equipment shall be rigidly mounted, and installed using supporting devices as indicated on the Contract Drawings, as required by the work, and described herein.

**PART 2 - PRODUCTS**

**2.01 ACCEPTABLE MANUFACTURERS**

- A. "Cooper B-Line," "Unistrut," or equal.

**2.02 MATERIALS**

- A. All mounting brackets and strut used outside shall be aluminum. Fasteners used to mount equipment outside shall be stainless steel.

**PART 3 - EXECUTION**

**3.01 SEISMIC CONSIDERATIONS**

- A. Where required, seismic restraints shall be provided for electrical equipment.

END OF SECTION-16070

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**SECTION 16120**  
**Conductors and Cables**

**PART 1 - GENERAL**

**1.01 SCOPE OF WORK**

- A. Wire and cable shall conform to the latest requirements of the NEC and shall meet all ASTM/UL specifications. Wire and cable shall be new; shall have size, grade of insulation, voltage rating and manufacturer's name permanently marked on the outer covering at regular intervals. Complete descriptive literature shall be submitted to the Engineer for review and acceptance prior to installation.

**1.02 DELIVERY, STORAGE AND HANDLING**

- A. Wire and cable shall be suitably protected from weather and damage during storage and handling and shall be in first class condition when installed.

**PART 2 - PRODUCTS**

**2.01 ACCEPTABLE MANUFACTURERS**

- A. Building Wire (types "THWN" and "THW"-cu.) – "American," "Carol," or equal.

**2.02 MATERIALS**

- A. General
- a. In general, all conductors shall be 98 percent conductive, annealed copper unless otherwise noted on the Contract Drawings.
  - b. Conductors shall be type THW or THWN insulation. Conductor size shall be AWG (American Wire Gauge) Standard. Minimum conductor size shall be AWG number 12 except branch circuits in excess of 75 feet from panel to first outlet not smaller than no. 10 AWG. Minimum voltage rating shall be 600 volts. Conductors for small power may be solid (i.e. lighting, receptacles), but conductors for control work shall be stranded.
  - c. Conductors with high temperature rated insulations and special construction shall be used where required in connecting to light fixtures or appliances that have special requirements.

**PART 3 - EXECUTION****3.01 INSTALLATION/APPLICATION/ERECTION****A. General**

- a. Conductors shall be color coded in accordance with the following schedule:

	480/277V 3 Phase
Phase A	Brown
Phase B	Orange
Phase C	Yellow
Neutral (Grounded)	White or Light Gray
Grounding	Green

- b. Conductors shall be pulled into raceways in strict accordance with manufacturer's recommendations.
- c. Ample slack conductors shall be allowed at each terminal point, and pull or junction box, to permit installation with ease and without crowding.
- d. All conductors terminating at terminal blocks shall be identified with numbers and/or letters identical to circuit or control identification.
- e. No conductors shall be drawn into conduits until all work which may cause wire or cable damage is completed. Wire pulling shall be accomplished utilizing machinery and accessories intended for the purpose.
- f. All connections and splices shall be made in accordance with conductor manufacturer's recommendations, and as written herein.
- g. In general, feeder sizes shown are based on no more than three current carrying conductors in a conduit. Multiple small branch circuit feeders may be combined in a common conduit, provided conductors are derated in accordance with NEC article 310-15.

**B. Feeders**

- a. All feeders are of the secondary type, below 600 volts, unless otherwise noted.

END OF SECTION-16120

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**SECTION 16130**  
**Raceways****PART 1 - GENERAL****1.01 SCOPE OF WORK**

- A. This section of the Technical Specifications includes all raceways for accommodation of electrical conductors, fittings therefore and accessories.
- B. All raceways shall be marked with the manufacturer's name or trademark as well as type of raceway and size. This marking shall appear at least once every 10 feet and shall be of sufficient durability to withstand the environment involved. All raceways shall be furnished and installed as outlined under Part 3 of this Specification.

**PART 2 - PRODUCTS****2.01 ACCEPTABLE MANUFACTURERS**

- A. Tubular Raceways
  - a. Aluminum, Rigid, Heavy-Wall, Threaded – “Wheatland Tube Co.,” “Thomas and Betts,” “Allied Tube & Conduit Corp.,” or equal.
  - b. Plastic (PVC); Type A (Thin Wall); Type 40 (or Schedule 40); Type 80 (or Schedule 80) (Heavy -Wall) – “Allied Tube & Conduit Corp.,” “Carlson,” or equal.
- B. Raceway Fittings
  - a. Conduit fittings – “Crouse-Hinds,” “Appleton,” “OZ Gedney,” or equal.
  - b. Non-metallic conduit fittings – “Carlson,” or equal.

**2.02 MATERIALS**

- A. 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.
  - c. Aluminum conduit proposed for concrete slab or underground applications shall be UL listed for the purpose and factory pre-coated.
- B. Polyvinylchloride (PVC) Conduit
  - a. PVC conduit and fittings shall be Schedule 40, 80 heavy wall, or thinwall, as indicated in these Specifications manufactured to conform to UL standards. It shall be listed and labeled by UL. It shall have at least the same temperature rating as the conductor insulation. 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.

### C. Conduit Fittings

#### a. Rigid Aluminum Conduit Fittings

1. Standard threaded couplings, locknuts, bushings, and elbows: Malleable iron, steel or aluminum alloy materials. Zinc or cadmium plate iron or steel fittings. Aluminum fittings containing more than 0.4 percent copper are prohibited.
2. Locknuts and bushings: As specified for rigid steel and IMC conduit.
3. Set screw fittings: Not permitted for use with aluminum conduit.

## **PART 3 - EXECUTION**

### **3.01 PREPARATION**

- A. Exterior underground metallic conduits shall be degreased, pretreated, and coated with 2 coats of Carboline 888 epoxy, or equal.

### **3.02 INSTALLATION**

#### A. Conduit

- a. All conduit shall be installed in a first class workmanship manner. Special care shall be used in assuring that exposed conduit runs are parallel or perpendicular to walls, structural members. No open wiring is allowed.
- b. During construction, all conduit work shall be protected to prevent lodgement of dirt, plaster or trash in conduits, fittings. Conduits which have been plugged shall be entirely freed of accumulations or be replaced. All conduits in floors or below grade shall be swabbed free of debris and moisture before wires are pulled. Crushed or deformed conduit shall not be permitted.
- c. All underground conduits entering a building or enclosure shall be sealed against water/condensate entering around the conductors. Sealant shall be Polywater FST duct sealant.
- d. Conduits to electrical enclosures installed below grade shall be sealed using Polywater FST duct sealant.
- e. PVC conduit installed underground for low voltage application shall be schedule 80, except service entrance conduits shall be schedule 40 PVC as indicated on the Construction Drawings.
- f. Aluminum conduit shall not be used underground or placed in concrete slabs.
- g. The minimum direct burial depth required for all exterior conduit is 30" except as indicated on Construction Drawings
- h. Maximum conduit burial depth shall be 60" unless otherwise indicated or agreed on a case-by-case basis.
- i. Wire pulling shall be facilitated by the use of a UL approved pulling compound in pulls over 30 feet in length or where there are 2 or more 90 degree bends. Only polypropylene, nylon, or manila pulling ropes will be permitted. **Standard industry recognized wire pulling equipment shall be used.**
- j. All conduits entering and leaving instrument enclosures shall be sealed around the wires with silicone caulk.
- k. Areas of use for each type of conduit:

Space Description	Schedule 80 PVC	Schedule 40 PVC	Aluminum
Exterior Exposed			X
Exterior Underground Direct Bury	X		
Exterior Underground Direct Bury for Secondary (as shown on Drawings)		X	

- l. Underground raceways (conduit) shall be concrete encased where they pass over or under obstructions, such as: sidewalks; roadways; piping; etc.
- m. All conduit shall have an insulated ground wire pulled to all equipment.
- n. The installation shall be made to avoid interference with pipes, ducts, structural members or other equipment. Should structural or other interference prevent the installation of the raceways, or setting of boxes, cabinets, or the electrical equipment, as indicated in the Drawings, deviations must be approved by the Owner, and after approval, shall be made without additional charges and shown on the Record Drawings.
- o. Conduit may be run inside concrete slabs as long as the slab is at least 6-inches thick and conduit will have at least 2-inches of cover on both sides.

END OF SECTION-16130



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**SECTION 16361**  
**Automatic Transfer Switch**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. This Section includes transfer switch rated 600 V and less, including the following:
  - 1. Automatic transfer switches

**1.03 SUBMITTALS**

- A. Product Data: For each type of product indicated. Include rated capacities, weights, operating characteristics, furnished specialties, and accessories.
- B. Shop Drawings: Dimensioned plans, elevations, sections, and details showing minimum clearances, conductor entry provisions, gutter space, installed features and devices, and material lists for each switch specified.
  - 1. Single-Line Diagram: Show connections between transfer switch, switch, power sources, and load.
- C. Manufacturer Seismic Qualification Certification: Submit certification that transfer switches accessories, and components will withstand seismic forces defined per IBC 2012 seismic standards. Include the following:
  - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
    - a. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."
  - 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
  - 3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- D. Field quality-control test reports.

- E. Operation and Maintenance Data: For each type of product to include in emergency, operation, and maintenance manuals. In addition to items specified, include the following:
1. Features and operating sequences, both automatic and manual.
  2. List of all factory settings of relays; provide relay-setting and calibration instructions, including software, where applicable.

#### **1.04 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Maintain a service center capable of providing training, parts, and emergency maintenance repairs within a response period of less than eight hours from time of notification.
- B. Comply with UL 1008 7th edition, unless requirements of these Specifications are stricter.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- D. Comply with NEMA ICS 1.
- E. Comply with NFPA 70.
- F. Comply with NFPA 99.
- G. Comply with NFPA 110.
- H. UL 891 Service Entrance Rated

#### **1.05 WARRANTY:**

Manufacturers standard form in which manufacturer agrees to repair or replace components of transfer switch and associated auxiliary components that fail in materials or workmanship within specified warranty period. Warranty is comprehensive and shall include all parts & labor for specified period.

1. Warranty period: 100% parts & labor for (2) Years from shipment, then 100% parts only for (5) Years from shipment.

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**PART 2 - PRODUCTS****2.01 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- a. ASCO Power Technologies, Russelectric, or equal.

**2.02 GENERAL TRANSFER-SWITCH PRODUCT REQUIREMENTS**

- A. Indicated Current Ratings: Apply as defined in UL 1008 for continuous loading and total system transfer, including tungsten filament lamp loads not exceeding 30 percent of switch ampere rating, unless otherwise indicated.
- B. Tested Fault-Current Closing and Withstand Ratings: Adequate for duty imposed by protective devices at installation locations in Project under the fault conditions indicated, based on testing according to UL 1008.
- C. Solid-State Controls: Repetitive accuracy of all settings shall be plus or minus 2 percent or better over an operating temperature range of minus 20 to plus 70 deg C.
- D. Resistance to Damage by Voltage Transients: Components shall meet or exceed voltage-surge withstand capability requirements when tested according to IEEE C62.41. Components shall meet or exceed voltage-impulse withstand test of NEMA ICS 1.
- E. Electrical Operation: Accomplish by a nonfused, momentarily energized solenoid or electric-motor-operated mechanism, mechanically and electrically interlocked in both directions.
- F. Switch Characteristics: Designed for continuous-duty repetitive transfer of full-rated current between active power sources.
1. Limitation: Switches using molded-case switches or circuit breakers or insulated-case circuit-breaker components are not acceptable.
  2. Switch Action: Double throw; mechanically held in both directions.
  3. Contacts: Silver composition or silver alloy for load-current switching.  
Conventional automatic transfer-switch units, rated 225 A and higher, shall have separate arcing contacts.
- G. Neutral Terminal: Switched and fully rated, unless otherwise indicated.
- H. Oversize Neutral: Ampacity and switch rating of neutral path through units indicated for oversize neutral shall be double the nominal rating of circuit in which switch is installed.

- I. Annunciation, Control, and Programming Interface Components: Devices at transfer switches for communicating with remote programming devices, annunciators, or annunciator and control panels shall have communication capability matched with remote device.
- J. Factory Wiring: Train and bundle factory wiring and label, consistent with Shop Drawings, either by color-code or by numbered or lettered wire and cable tape markers at terminations.
  - 1. Designated Terminals: Pressure type, suitable for types and sizes of field wiring indicated.
  - 2. Power-Terminal Arrangement and Field-Wiring Space: Suitable for top, side, or bottom entrance of feeder conductors as indicated.
  - 3. Control Wiring: Equipped with lugs suitable for connection to terminal strips.
- K. Enclosures: Wall-mounted NEMA Type 4X stainless steel enclosure, unless otherwise indicated on plans.

### **2.03 AUTOMATIC TRANSFER SWITCHES**

- A. Comply with Level 1 equipment according to NFPA 110.
- B. Switching Arrangement: Double-throw type, incapable of pauses or intermediate position stops during normal functioning, unless otherwise indicated.
- C. Manual Switch Operation: Under load, with door closed and with either or both sources energized. Transfer time is same as for electrical operation. Control circuit automatically disconnects from electrical operator during manual operation. Two toggle switches to permit selection of manual or automatic retransfer to normal. Manual is automatically bypassed if emergency fails while normal is available. Open first switch for manual mode, momentarily close second switch to retransfer to normal. Includes pilot light to indicate manual position.
- D. Manual Switch Operation: Unloaded for maintenance purposes only.
- E. Digital Communication Interface: Matched to capability of remote annunciator or annunciator and control panel. Include SNMP, Modbus RS485 & TCP/IP communications, SMTP email notifications, & integral web page for remote monitoring. Communication interface shall have four Ethernet Ports to allow for daisy chain of multiple devices.
- F. Dual Operator Delayed Transition (Center Off) Contactor Based transfer mechanisms. Linear motors are not acceptable.
- G. Motor Disconnect and Timing Relay: Controls designate starters so they disconnect motors before transfer and reconnect them selectively at an adjustable time interval after transfer. Control connection to motor starters is through wiring external to automatic transfer switch. Time delay for reconnecting individual motor loads is adjustable between 1 and 60 seconds, and settings are as indicated. Relay contacts

handling motor-control circuit inrush and seal currents are rated for actual currents to be encountered.

- H. Terminal provisions for a remote contact which opens to signal, the transfer switch to transfer to emergency and for remote contacts which open to inhibit transfer to emergency and/or retransfer to normal. Both of these inhibit signals can be activated through the keypad or serial port.
- I. System LCD controller/display. Shall include the following features:
  - 1. System status screen which shall be readily accessible from any point in the menu by depressing the "ESC" key a maximum of two times. This screen shall display a clear description of the active operating sequence and switch position. For example:
    - a. Normal Failed
    - b. Load on Normal
    - c. TD Normal to Emergency (X min X seconds)

Controllers that require multiple screens to determine system status or display "coded" system status messages, which must be explained by references in an operators manual, are not acceptable.

- 2. Self Diagnostics: The controller shall contain a diagnostic screen for the purpose of detecting system errors. This screen shall provide information on the status input signals to the controller which may be preventing load transfer commands from being complete.
  - 3. Data Logging: The controller shall have the ability to log data and to maintain the last 99 events, even in the event of total power loss. The following events shall be time and date stamped and maintained in non-volatile memory:
    - a. Event Logging:
    - b. Data and time and reason for transfer normal to emergency
    - c. Data and time and reason for transfer emergency to normal
    - d. Data and time and reason for engine start.
    - e. Data and time engine stopped.
    - f. Data and time emergency source available.
    - g. Data and time emergency source not available.
  - 4. Statistical Data:
    - a. Total number of transfers.
    - b. Total number of transfers due to source failure.
    - c. Total number of days controller is energized.
    - d. Total number of hours both normal and emergency sources are available.
- J. One set of double pole, double throw contacts that operate when normal source voltage is available and one set of double pole, double throw contacts that operate when emergency source voltage is available.

## K. Automatic Transfer-Switch Features:

1. Undervoltage Sensing for Each Phase of Normal Source: Sense low phase-to-ground voltage on each phase. Pickup voltage shall be adjustable from 85 to 100 percent of nominal, and dropout voltage is adjustable from 75 to 98 percent of pickup value. Factory set for pickup at 90 percent and dropout at 85 percent.
2. Undervoltage Sensing for Each Phase of Emergency Source: Sense low phase-to-ground voltage on each phase. Pickup voltage shall be adjustable from 85 to 100 percent of nominal, and drop out voltage is adjustable from 70 to 98 percent of pickup value. Factory set for pickup at 90 percent and dropout at 85 percent.
3. Phase rotation monitor
4. Adjustable Time Delay: For override of normal-source voltage sensing to delay transfer and engine start signals. Adjustable from zero to six seconds, and factory set for one second.
5. Voltage/Frequency Lockout Relay: Prevent premature transfer to generator. Pickup voltage shall be adjustable from 85 to 100 percent of nominal. Factory set for pickup at 90 percent. Pickup frequency shall be adjustable from 90 to 100 percent of nominal. Factory set for pickup at 95 percent.
6. Time Delay for Retransfer to Normal Source: Adjustable from 0 to 30 minutes, and factory set for 10 minutes to automatically defeat delay on loss of voltage or sustained undervoltage of emergency source, provided normal supply has been restored.
7. Test Switch: Simulate normal-source failure.
8. Switch-Position Pilot Lights: Indicate source to which load is connected.
9. Source-Available Indicating Lights: Supervise sources via transfer-switch normal- and emergency-source sensing circuits.
  - a. Normal Power Supervision: Green light with nameplate engraved "Normal Source Available."
  - b. Emergency Power Supervision: Red light with nameplate engraved "Emergency Source Available."
10. Unassigned Auxiliary Contacts: Two normally open, single-pole, double-throw contacts for each switch position, rated 10 A at 240-V ac.
11. Transfer Override Switch: Overrides automatic retransfer control so automatic transfer switch will remain connected to emergency power source regardless of condition of normal source. Pilot light indicates override status.
12. Engine Starting Contacts: One isolated and normally closed, and one isolated and normally open; rated 10 A at 32-V dc minimum.
13. Engine Shutdown Contacts: Time delay adjustable from zero to five minutes, and factory set for five minutes. Contacts shall initiate shutdown at remote engine-generator controls after retransfer of load to normal source.
14. Engine-Generator Exerciser: Solid-state, programmable-time switch starts engine generator and transfers load to it from normal source for a preset time, then retransfers and shuts down engine after a preset cool-down period. Initiates exercise cycle at preset intervals adjustable from 7 to 30 days. Running periods are adjustable from 10 to 30 minutes. Factory settings are for 30-day exercise cycle, 20-minute running period, and 5-minute cool-down period. Exerciser features include the following:
  - a. Exerciser Transfer Selector Switch: Permits selection of exercise with and without load transfer.

- b. Push-button programming control with digital display of settings.
- c. Integral battery operation of time switch when normal control power is not available.

## **2.04 CONTROL SYSTEM**

- A. Functional Description: Include the following functions for indicated transfer switches:
  1. Indication of sources available, as defined by actual pickup and dropout settings of transfer-switch controls.
  2. Indication of switch position.
  3. Indication of switch in test mode.
  4. Indication of failure of digital communication link.
  5. Key-switch or user-code access to control functions of panel.
  6. Control of switch-test initiation.
  7. Control of switch operation in either direction.
- B. Malfunction of control panel, or communication link shall not affect functions of automatic transfer switch. In the event of failure of communication link, automatic transfer switch automatically reverts to stand-alone, self-contained operation. Remote Annunciation and Control Panel: Solid-state components. Include the following features:
  1. Controls and indicating lights grouped together for transfer switch.
  2. Label each indicating light control group. Indicate transfer switch it controls, location of switch, and load it serves.
  3. Digital Communication Capability: Matched to that of transfer switches supervised.
  4. Mounting: Flush, modular, steel cabinet, unless otherwise indicated.

## **2.05 SOURCE QUALITY CONTROL**

- A. Factory test and inspect components, assembled switches, and associated equipment. Ensure proper operation. Check transfer time and voltage, frequency, and time-delay settings for compliance with specified requirements. Perform dielectric strength test complying with NEMA ICS 1.

## **PART 3 - EXECUTION**

### **3.01 INSTALLATION**

- A. Design each fastener and support to carry load indicated by seismic requirements and according to seismic-restraint details.
- B. Set field-adjustable intervals and delays, relays, and engine exerciser clock.

**3.02 CONNECTIONS**

- A. Wiring to Remote Components: Match type and number of cables and conductors to control and communication requirements of transfer switches as recommended by manufacturer. Increase raceway sizes at no additional cost to Owner if necessary to accommodate required wiring.

**3.03 FIELD QUALITY CONTROL**

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections. Report results in writing.
1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installation, including connections, and to assist in testing.
  2. After installing equipment and after electrical circuitry has been energized, test for compliance with requirements.
  3. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
  4. Measure insulation resistance phase-to-phase and phase-to-ground with insulation-resistance tester. Include external annunciation and control circuits. Use test voltages and procedure recommended by manufacturer. Comply with manufacturer's specified minimum resistance.
    - a. Check for electrical continuity of circuits and for short circuits.
    - b. Inspect for physical damage, proper installation and connection, and integrity of barriers, covers, and safety features.
    - c. Verify that manual transfer warnings are properly placed.
    - d. Perform manual transfer operation.
  5. After energizing circuits, demonstrate interlocking sequence and operational function for each switch at least three times.
    - a. Simulate power failures of normal source to automatic transfer switches and of emergency source with normal source available.
    - b. Simulate loss of phase-to-ground voltage for each phase of normal source.
    - c. Verify time-delay settings.
    - d. Verify pickup and dropout voltages by data readout or inspection of control settings.
    - e. Test transfer-switch operations.
    - f. Perform contact-resistance test across main contacts and correct values exceeding 500 microhms and values for 1 pole deviating by more than 50 percent from other poles.
    - g. Verify proper sequence and correct timing of automatic engine starting, transfer time delay, retransfer time delay on restoration of normal power, and engine cool-down and shutdown.
  6. Ground-Fault Tests: Coordinate with testing of ground-fault protective devices for power delivery from both sources.



- a. Verify grounding connections and locations and ratings of sensors.
7. After energizing circuits, demonstrate interlocking sequence and operational function for each switch at least three times.
    - a. Simulate power failures of normal source to automatic transfer switches and of emergency source with normal source available.
    - b. Simulate loss of phase-to-ground voltage for each phase of normal source.
    - c. Verify time-delay settings.
    - d. Verify pickup and dropout voltages by data readout or inspection of control settings.
    - e. Test unit functional modes and related automatic transfer-switch operations.
    - f. Perform contact-resistance test across main contacts and correct values exceeding 500 microhms and values for 1 pole deviating by more than 50 percent from other poles.
    - g. Verify proper sequence and correct timing of automatic engine starting, transfer time delay, retransfer time delay on restoration of normal power, and engine cool-down and shutdown.
- B. Coordinate tests with tests of generator and run them concurrently.
  - C. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation and contact resistances and time delays. Attach a label or tag to each tested component indicating satisfactory completion of tests.
  - D. Remove and replace malfunctioning units and retest as specified above.

### 3.04 **DEMONSTRATION**

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain transfer switches and related equipment as specified below.

END OF SECTION - 16361

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**SECTION 16410**  
**Safety Switches**

**PART 1 - GENERAL**

**1.01 SCOPE OF WORK**

- A. The Contractor shall furnish and install the low-voltage non-fused switches as specified herein and as shown on the contract drawings.

**1.02 SUBMITTALS**

- A. The following information shall be submitted to the Engineer:
- a. Dimensioned outline drawing
  - b. Conduit entry/exit locations
  - c. Switch ratings including:
    - 1. Short-circuit rating
    - 2. Voltage
    - 3. Continuous current
  - d. Cable terminal sizes
  - e. Product data sheets

**PART 2 - PRODUCTS**

**2.01 ACCEPTABLE MANUFACTURERS**

- A. Square D, Eaton, Siemens, or equal.

**2.02 HEAVY-DUTY SAFETY SWITCHES**

- A. Safety switches shall be of the heavy duty industrial, quick make, quick-break type. Ratings shall correspond to that of the equipment in which circuit it is used.
- B. Safety switches shall have a mechanical door interlock to prevent the door from being opened with the switch in the on position and facilities for locking it in the closed or open position. Enclosures for outside installation shall be NEMA 4X.
- C. Safety switches shall be UL listed and shall conform to NEMA Standards. NEMA 4X enclosed safety switches where called for shall be stainless steel.
- D. Provide switches as shown on drawings, with the following ratings:
- a. 200 ampere
  - b. 600 volts ac
  - c. 4 poles
  - d. Non-fusible
  - e. Mechanical lugs suitable for aluminum or copper conductors.

**PART 3 - EXECUTION**

**3.01 FACTORY TESTING**

- A. Standard factory tests shall be performed on the equipment provided under this section. All tests shall be in accordance with the latest version of UL and NEMA standards.

**3.02 INSTALLATION/APPLICATION/ERECTION**

- A. The equipment shall be installed per the manufacturer's recommendations and all NEC and local code requirements.

END OF SECTION - 16410

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**SECTION 16900**  
**SCADA System****PART 1 - GENERAL****1.1 PROJECT DESCRIPTION****A. Description of Work**

The work to be accomplished under this section shall consist of furnishing the equipment necessary for a complete automatic control and monitoring system to function as specified herein and as shown on the drawings. The system integrator shall furnish a completely integrated all solid-state radio telemetry base Supervisory Control and Data Acquisition (SCADA) system. **It shall be the system integrator's responsibility to supply a system that is compatible with existing Micro-Comm, Inc. SCADA equipment.** The complete system shall be designed, fabricated, programmed, tested, started up, and warranted by a single supplier to insure a single source of responsibility.

**B. Scope of Work**

This section covers a radio Micro-Comm telemetry-based SCADA system modification to include:

- (1) Proposed Pump Station Site Remote Unit (PLC-RTU)
- (1) Modification to the existing Micro-Comm Central Unit, incorporating the proposed RTU data into the existing Central Unit.

**C. Micro-Comm Shall Supply:**

Engineering submittal and shop drawings prior to installation.  
Operation and maintenance manuals, as detailed in this section.  
All start-up labor and services, as required for equipment specified in this section.  
Operator training as detailed in this section.

**D. General/Electrical Contractor Shall Supply**

All equipment required in other sections of the specifications.  
All labor for installation of the system.

**E. Owner/General Contractor Shall Supply:**

Access and easements as needed for all sites.  
120VAC power at all sites.

**1.2 QUALITY ASSURANCE****A. Manufacturer's Qualifications**

The system specified herein shall be the product of a manufacturer who can demonstrate at least ten (10) years of satisfactory experience in furnishing and installing comparable radio-based telemetry/control systems for water and wastewater installations. The manufacturer of this system shall maintain a 24-hour available inventory of all replaceable modules to assure the Owner of prompt maintenance service and a single source of responsibility. The manufacturer shall certify this to the Engineer in writing at the time of bidder pre-qualification.

**B. Approved SCADA/Telemetry Supplier****Micro-Comm, Inc. Olathe, Kansas.**

Local Contact: Jason Bivins; JAGS Environmental, Inc.

Phone: (859) 342-4944 Office

**C. Approval Agencies**

The control system and its components shall comply will all applicable requirements of the following:

Electrical Code Compliance (National &amp; Local)

UL 508A

NEMA Compliance

IEEE Compliance

EIA Compliance

FCC Compliance

**1.3 SUBMITTALS:****A. Complete submittal shall be provided to the engineer for approval prior to equipment fabrication. The submittal data shall include the following:**

1. **Product Data** - Provide product data sheets for each instrument and component supplied in the system. The data sheets shall show the component name as used on reference drawings, manufacturer's model number or other product designator, input and output characteristics, scale or ranges selected, electrical or mechanical requirements, and materials compatibility.
2. **Shop Drawings** - Provide drawings for each panel showing the wiring diagrams for control circuits and interconnections of all components. The drawings shall include wiring diagrams for all remote devices connected to the panel.
3. **Panel Layout Drawings** - A front panel and sub-panel layout shall be included as part of each control panel drawing. Components shall be clearly labeled on the drawing.
4. **Installation Drawings** - Typical installation drawings applicable to each site in the system shall be included.
5. **Operator Interface Software** - The submittal shall include a generic but detailed technical description of the Operator's Interface Software as proposed for this system including:
  - Sample text screens and menus
  - Sample graphics screens
  - Sample report logs and printed graphs

**1.4 MAINTENANCE INFORMATION****A. Maintenance Data Manuals**

Submit maintenance manuals and "as built" drawings on all items supplied with the system. The manuals and drawings are to be bound into one or more books as needed. In addition to "as built" engineering submittal data and drawings, the manual shall include trouble shooting guides and maintenance and calibration data for all adjustable items.

## 1.5 JOB CONDITIONS

- A. All instruments and equipment shall be designed to operate under the environmental conditions where they are to perform their service. The equipment shall be designed to handle lightning and transient voltages as normal environmental hazards. The environmental conditions are as follows:
1. Outdoor - The equipment will be exposed to direct sunlight, dust, rain, snow, ambient temperatures from -20 to +120 degrees F, relative humidity of 10 to 100 percent, and other natural outdoor conditions. The installations shall be hardened to with stand normal vandalism.
  2. Indoor - The equipment will be capable of operating in ambient temperatures of +32 to +130 degrees F and relative humidity of 20 to 100 percent.

## 1.6 DELIVERY, STORAGE, & HANDLING

- A. All items shall be stored in a dry sheltered place, not exposed to the outside elements, until ready for installation. All items shall be handled with appropriate care to avoid damage during transport and installation.

## 1.7 SEQUENCING & SCHEDULING

### A. Coordination

Micro-Comm shall coordinate with the electrical and mechanical work including wires/cables, raceways, electrical boxes and fittings, controls supplied by others, and existing controls, to properly interface installation and commissioning of the control system.

### B. Sequence

Sequence installation and start-up work with other trades to minimize downtime and to minimize the possibility of damage and soiling during the remainder of the construction period.

## PART 2 - PRODUCTS

### 2.1 PROGRAMMABLE LOGIC CONTROLLERS & LOCAL I/O EQUIPMENT

#### A. General

Industrial Programmable Logic Controllers (PLCs) shall be used at all locations. The PLCs shall have an operational range of 0-60degC and 5-95% relative humidity. The PLCs shall all be from the same family of controllers, scalable from very small to very large applications, and programmed from identical programming software used for all processors. The PLCs shall be Micro-Comm M1600 Series controllers.

## 2.2 RADIO CHANNEL DATA OPERATION

### A. General

The control system shall be specifically designed for radio channel data communications. The core of the system shall be over FCC licensed radio frequency spectrum intended for SCADA and remote-control purposes. The systems integrator shall be responsible of obtaining the necessary FCC licenses for one or more frequencies as needed to establish both supervisory and distributed control.

All of the equipment required for operation of the system shall be directly owned by the Owner and included as part of this contract. Systems using third party repeaters, trunking masters, or leased equipment will not be allowed.

The overall system design and operation shall provide a 20db pad over the minimum required for operation on all primary data paths (primary paths may include data relays) to insure a 98% reliability of communications. Remote site communications for distributed peer-to-peer communications shall provide 30db of pad to insure operation under all weather conditions and provide a 99.9% communications reliability. The 20db and 30db pad requirements and FCC rule compliance shall be demonstrated (at no additional cost) to the Engineer at his request. The testing shall be accomplished using an IFR AM/FM 1000S communications analyzer or equal equipment.

### B. Communications

The CTU-RTU supervisory communications and RTU-RTU distributed control communications system shall operate in a half-duplex mode over a single "licensed" radio frequency using "point-to-point" communication techniques. The RTUs shall monitor for the channel to avoid data collisions with other RTUs during peer-to-peer communications. The system shall be capable of sharing the radio channel with other radio telemetry system.

All data transmitted shall be in digital word using FSK (frequency shift keying) transmission. All transmissions shall include the address of the sender and the receiver, and be subject to check sum, parity, and framing error checks, to insure a minimum data reliability of 1 error in 1,000,000,000 bits. Any transmissions that fail the data checking will be retried until correct. No data correction methods will be allowed. A plug-in RS232C data port shall be provided at all locations in the system to allow the use of a standard data terminal to view data exchanges between the sites and to provide a means of extensive de-bugging. The radio transceivers shall be a Motorola CM200d model.

## 2.3 INSTRUMENTATION & ACCESSORIES

All instrumentation materials are to be supplied by the pump station manufacturer.

## PART 3 - EXECUTION

### 3.1 FCC LICENSING

The system manufacturer/supplier shall be responsible for collecting all information, generating all paper work, and paying all fees required for modifying the license on behalf of the Owner.

### 3.2 EQUIPMENT EXAMINATION

The control system shall be completely tested prior to shipment. The entire control system shall be "Burned In" at the factory for a period of at least 20 days. The component equipment shall be computer tested and temperature cycled at zero degrees and at fifty degrees centigrade.

### 3.3 SYSTEM START-UP

The manufacturer shall supply "Factory" personnel for start-up service as needed to insure satisfactory operation. Subsequent trips to the job site to correct defects shall be made at no charge to the Owner during the warranty period.

### 3.4 SUBSTANTIAL COMPLETION

The Engineer will grant substantial completion only after completion of the start-up and initial training phase of the project. The Engineer shall make an inspection of the system to determine the status of completion. Substantial completion will be awarded only when the system is providing usable service to the Owner. If the system is commissioned in phases, the Contractor may request substantial completion for the completed phases.

### 3.5 WARRANTY/SUPPORT PROGRAM

The control system manufacturer shall supply a Five (5) year parts and labor warranty and comprehensive support program for all items and software supplied under this section. Power surges and lightning damage shall be included as part of the warranty.

The warranty shall begin from the time of "substantial completion" as issued by the engineer. The manufacturer shall provide a 24-hour response to calls from the Owner. The manufacturer, at his discretion, may dispatch replacement parts to the Owner by next-day delivery service for field replacement by the Owner. Any damage to the control system caused by the actions of the Owner in attempting these field replacements shall be the sole responsibility of the manufacturer. If, during the warranty period, satisfactory field repair cannot be attained by field replacement of parts by the Owner, the manufacturer shall dispatch "factory" personnel to the job site to complete repairs at no cost to the Owner.

The support program shall begin from the time of "substantial completion" as issued by the engineer.



**PART 4 - APPENDIX: DETAILED EQUIPMENT DESCRIPTION****4.1 PROPOSED PUMP STATION REMOTE UNIT REQUIREMENTS:****A. Installation Requirements:**

Site: Highway 33 Booster Pump Station

The PLC-RTU shall be housed in a NEMA 12 wall mount enclosure. The installation shall be detailed in the submittal process. The General/Electrical Contractor shall coordinate the communication process between the pump station manufacturer and SCADA/Telemetry supplier.

The General/Electrical Contractor will be responsible for the installation of the specified remote unit panel. Installation to include panel mounting, instrumentation mounting, antenna mounting, electrical wiring, and plumbing requirements. Note: The SCADA/Telemetry panel can be sent to the pump station manufacturer for factory panel installation.

The General/Electrical Contractor will be responsible for the installation of the antenna & coax. The antenna shall be mounted on a 10' long X 1-1/2" diameter mast secured to the side of the structure or on a 20' power pole with 1.25" rigid conduit and a weather-head run to the RTU enclosure as previously specified.

**B. Front Panel Display Requirements:**

Keypad LCD Display

**C. Pump Station "Telemetry Control Interface Panel" and Instrumentation Interface:**

**Reference Section 11200-Booster Pump Station for control and monitoring details.  
Specific I/O monitoring & control shall be detailed in the submittal process.**

**4.2 CENTRAL UNIT MODIFICATION REQUIREMENTS:****A. The proposed RTU Information to be added to the existing Central Unit:**

The new RTU site information shall be displayed, monitored, and controlled via the existing SCADAview software program.

END OF SECTION

**APPENDIX A**  
**PROPERTY OWNER RELEASE**

**RELEASE**

I/We, \_\_\_\_\_, in consideration of work

(Printed Name of Owner)

performed to date on the \_\_\_\_\_

(Name of Project)

including backfilling, grading, disposal of excavated and waste material, seeding and mulching, etc., hereby release \_\_\_\_\_ and its

(Name of Project Owner)

contractor \_\_\_\_\_ from claims

(Name of Contractor)

arising from the construction process. I/We reserve the right to require the contractor, noted above, through the project owner, to return during the warranty period, should portions of the disturbed areas fail to achieve adequate grass cover or other items constructed fail to meet normal expectations. Any claim shall be reviewed by the project owner or representative thereof to determine the legitimacy of the claim.

\_\_\_\_\_

\_\_\_\_\_

(Location: Street Address, City, State and Contact Number)

Signed this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_.

X \_\_\_\_\_

Witness: \_\_\_\_\_

**APPENDIX B**  
**CERTIFICATE OF EXEMPTION**

Important—Certificate not valid unless completed in full.



**CERTIFICATE OF EXEMPTION  
FOR BUILDING MATERIALS, FIXTURES AND SUPPLIES  
PURCHASED BY A CONSTRUCTION CONTRACTOR FOR  
A SEWER OR WATER PROJECT WITH A  
GOVERNMENTAL AGENCY**

In accordance with KRS 139.480(34), this certificate may be executed only for those purchases (*on or after 01/01/2023*) of building materials, fixtures and supplies that will be permanently incorporated into a structure or improvement to real property, or will be completely consumed, in fulfilling a construction contract with a governmental agency for the purpose of furnishing water or sewer services to the general public. The building materials, fixtures and supplies purchased must also be exempt from the sales and use tax if purchased directly by the governmental agency. This certificate must be executed jointly by the governmental agency and the construction contractor who is under contract with the governmental agency and purchases the property to fulfill the terms of the construction contract.

THE UNDERSIGNED HEREBY CERTIFIES THAT THE PROPERTY TO BE PURCHASED FROM:

\_\_\_\_\_  
Vendor Name and Address

will be permanently incorporated into a structure or improvement to real property, or will be completely consumed, in fulfilling a construction contract with a governmental agency for the purpose of furnishing water or sewer services to the general public.

Type and description of property to be purchased:

Building Materials: \_\_\_\_\_

Fixtures: \_\_\_\_\_

Supplies: \_\_\_\_\_

Project Period of Construction Contract: Start Date \_\_\_\_\_ End Date \_\_\_\_\_

**This jointly executed certificate of exemption, shall be valid only for purchases made for the project period of the construction contract indicated on the certificate at the time of purchase. A construction contractor shall jointly execute a new certificate with a government agency for additional purchases of building materials, fixtures and supplies required for the same project after the initial expiration date or for additional projects.**

I, the purchaser, understand that if the property described above is used in a nonexempt manner, I am liable for the payment of sales tax as provided in KRS 139.270, as if I were the retailer making a retail sale of the property at the time of such use and the cost to me shall be deemed the gross receipts from such retail sale. I will immediately remit to the Department of Revenue, Frankfort, Kentucky 40620, the required tax measured by the purchase price of the property. I also understand that the department shall hold the purchaser liable for the remittance of the tax and may apply any penalties as provided in KRS 139.990.

Under penalties of perjury, I swear or affirm that the information on this certificate is true and correct as to every material matter.

\_\_\_\_\_  
Governmental Agency

\_\_\_\_\_  
Exemption Number

\_\_\_\_\_  
Governmental Agency Authorized Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Construction Contractor Name (Print)

\_\_\_\_\_  
FEIN

\_\_\_\_\_  
Construction Contractor Authorized Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Sub-Contractor Name (Print)

\_\_\_\_\_  
FEIN

\_\_\_\_\_  
Sub-Contractor Authorized Signature

\_\_\_\_\_  
Date

# **EXHIBIT 20**



Andy Beshear  
GOVERNOR

**ENERGY AND ENVIRONMENT CABINET**  
**DEPARTMENT FOR ENVIRONMENTAL PROTECTION**

300 Sower Boulevard  
Frankfort, Kentucky 40601  
Phone: (502) 564-2150  
Fax: 502-564-4245

Rebecca W. Goodman  
SECRETARY

Anthony R. Hatton  
COMMISSIONER

July 13, 2023

Barry Drury  
South Woodford Co Water District  
117D Crossfield Dr  
Versailles, KY 40383

RE: KY 33 PS Replacement  
Woodford County, KY  
South Woodford Co Water District  
AI #: 34144, APE20230001  
PWSID #: 1200411-23-001

Dear Mr. Drury:

We have reviewed the plans and specifications for the above referenced project. The plans include the construction of one duplex pump station with pumps capable of approximately 725 GPM at 130 feet TDH. This is to advise that plans and specifications for the above referenced project are APPROVED with respect to sanitary features of design, as of this date with the requirements contained in the attached construction permit.

If you have any questions concerning this project, please contact Cassie Campbell at 502-782-6909.

Sincerely,

A handwritten signature in black ink, appearing to read "T. Humphries", written over a horizontal line.

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

TH:CC

Enclosures

c: HMB Professional Engineers Inc  
Woodford County Health Department  
Division of Plumbing

**Distribution-Major Construction**  
 South Woodford Co Water District  
 Facility Requirements

Activity ID No.:APE20230001

**GACT0000000013 (KY 33 Pump Station Replacement) pump station with two pumps each capable of 725 GPM at 130 feet TDH:**

**Narrative Requirements:**

Condition No.	Condition
T-1	Construction of this project shall not result in the water system's inability to supply consistent water service in compliance with 401 KAR 8:010 through 8:600. [401 KAR 8:100 Section 5]
T-2	The public water system shall not implement a change to the approved plans without the prior written approval of the cabinet. [401 KAR 8:100 Section 4(3)]
T-3	A proposed change to the approved plans affecting sanitary features of design shall be submitted to the cabinet for approval in accordance with Section 2 of this administrative regulation. [401 KAR 8:100 Section 4(2)]
T-4	During construction, a set of approved plans and specifications shall be available at the job site. Construction shall be performed in accordance with the approved plans and specifications. [401 KAR 8:100 Section 3(1)]
T-5	Unless construction begins within two (2) years from the date of approval of the final plans and specifications, the approval shall expire. [401 KAR 8:100 Section 3(3)]
T-6	Upon completion of construction, a professional engineer shall certify in writing that the project has been completed in accordance with the approved plans and specifications. [401 KAR 8:100 Section 4(1)]
T-7	The system shall be designed to maintain a minimum pressure of 20 psi at ground level at all points in the distribution system under all conditions of flow. [Recommended Standards for Water Works 8.2.1, Drinking Water General Design Criteria IV.1.a]
T-8	Pumping facilities shall be elevated to a minimum of three feet above the 100-year flood elevation, or three feet above the highest recorded flood elevation, whichever is higher, or protected to such elevations, [Recommended Standards for Water Works 6.1.1.a]
T-9	Pumping facilities shall be readily accessible at all times. [Recommended Standards for Water Works 6.1.1.b]
T-10	Pumping facilities shall be graded around the station so as to lead surface drainage away from the station. [Recommended Standards for Water Works 6.1.1.c]
T-11	Pumping facilities shall be protected to prevent vandalism and entrance by animals or unauthorized persons. [Recommended Standards for Water Works 6.1.1.d]
T-12	Raw and finished pump stations shall have adequate space for the installation of additional units if needed, and for the safe servicing of all equipment. [Recommended Standards for Water Works 6.2.a]
T-13	Raw and finished pump stations shall have floors that slope to a suitable drain. [Recommended Standards for Water Works 6.2.c]



**Distribution-Major Construction**  
 South Woodford Co Water District  
 Facility Requirements

Activity ID No.:APE20230001

**GACT0000000013 (KY 33 Pump Station Replacement) pump station with two pumps each capable of 725 GPM at 130 feet TDH:**

**Narrative Requirements:**

Condition No.	Condition
T-14	Raw and finished pump stations shall provide a suitable outlet for drainage from pump glands without discharging onto the floor. [Recommended Standards for Water Works 6.2.f]
T-15	At least two pumping units shall be provided. With any pump out of service, the remaining pump or pumps shall be capable of providing the maximum pumping demand of the system. [Recommended Standards for Water Works 6.3]
T-16	Pumps shall have ample capacity to supply the peak demand against the required distribution system pressure without dangerous overloading. [Recommended Standards for Water Works 6.3.a]
T-17	Pumps shall be driven by prime movers able to meet the maximum horsepower condition of the pumps. [Recommended Standards for Water Works 6.3.b]
T-18	Pumps shall be provided with readily available spare parts and tools. [Recommended Standards for Water Works 6.3.c]
T-19	Pump stations shall have indicating, totalizing, and recording metering of the total water pumped. [Recommended Standards for Water Works 6.6.3]
T-20	Each pump shall have a standard pressure gauge on its discharge line. [Recommended Standards for Water Works 6.6.3.a]
T-21	Each pump shall have a compound gauge on its suction line. [Recommended Standards for Water Works 6.6.3.b]
T-22	Where two or more pumps are installed, provision shall be made for alternation. [Recommended Standards for Water Works 6.6.5]
T-23	Provisions shall be made to prevent energizing the pump motor in the event of a backspin cycle. [Recommended Standards for Water Works 6.6.5]
T-24	Electrical controls shall be located above grade. [Recommended Standards for Water Works 6.6.5]
T-25	Equipment shall be provided or other arrangements made to prevent surge pressures from activating controls which switch on pumps or activate other equipment outside the normal design cycle of operation. [Recommended Standards for Water Works 6.6.5]
T-26	Pump stations shall have a power supply provided from at least two independent sources or a standby or an auxiliary source. [Recommended Standards for Water Works 6.6.6]

**Distribution-Major Construction**  
South Woodford Co Water District  
Facility Requirements

Activity ID No.:APE20230001

**GACT0000000013 (KY 33 Pump Station Replacement) pump station with two pumps each capable of 725 GPM at 130 feet TDH:**

**Narrative Requirements:**

Condition No.	Condition
T-27	If standby power is provided by onsite generators or engines, the fuel storage and fuel line must be designed to protect the water supply from contamination. [Recommended Standards for Water Works 6.6.6]
T-28	All lubricants which come into contact with the potable water shall be certified for conformance to ANSI/NSF Standard 60. [Recommended Standards for Water Works 6.6.8]
T-29	Booster pumps stations shall have a bypass available. [Recommended Standards for Water Works 6.4.e]
T-30	Each booster pumping station shall contain not less than two pumps with capacities such that peak demand can be satisfied with the largest pump out of service. [Recommended Standards for Water Works 6.4.1]
T-31	All booster pumping stations shall be fitted with a flow rate indicating and totalizer meter. [Recommended Standards for Water Works 6.4.2]
T-32	Inline booster pumps shall be accessible for servicing and repairs. [Recommended Standards for Water Works 6.4.3]
T-33	Each pump must have an isolation valve on the intake and discharge side of the pump to permit satisfactory operation, maintenance and repair of the equipment. [Recommended Standards for Water Works 6.4.1]
T-34	Each pump shall have a positive?acting check valve on the discharge side between the pump and the shut?off valve. [Recommended Standards for Water Works 6.6.1]
T-35	Pump station piping shall be designed so that the friction losses will be minimized, not be subject to contamination, have watertight joints, be protected against surge or water hammer with suitable restraints when necessary, and be such that each pump has an individual suction line or the lines shall be manifolded that they will insure similar hydraulic and operating conditions. [Recommended Standards for Water Works 6.6.2]
T-36	Booster pumps taking suction from storage tanks shall be provided adequate net positive suction head. [Recommended Standards for Water Works 6.4.b]
T-37	Booster pumps shall controlled so that automatic shutoff or low pressure controllers maintain at least 20 psi in the suction line under all operating conditions. [Recommended Standards for Water Works 6.4.c]
T-38	Booster pumps taking suction from ground storage tanks shall be equipped with automatic shutoffs or low pressure controllers. [Recommended Standards for Water Works 6.4.c]

**Distribution-Major Construction**  
South Woodford Co Water District  
Facility Requirements

Activity ID No.:APE20230001

**GACT0000000013 (KY 33 Pump Station Replacement) pump station with two pumps each capable of 725 GPM at 130 feet TDH:**

**Narrative Requirements:**

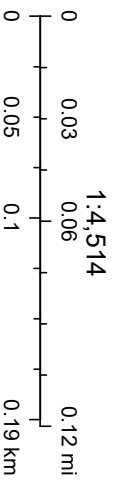
Condition No.	Condition
T-39	All automatic pump stations should be provided with automatic signaling apparatus which will report when the station is out of service. [Recommended Standards for Water Works 6.5]
T-40	All remote controlled stations shall be electrically operated and controlled and shall have signaling apparatus of proven performance. [Recommended Standards for Water Works 6.5]
T-41	Raw and finished pump stations shall have a floor elevation of at least six inches above finished grade. [Recommended Standards for Water Works 6.2.c]

# **EXHIBIT 21**

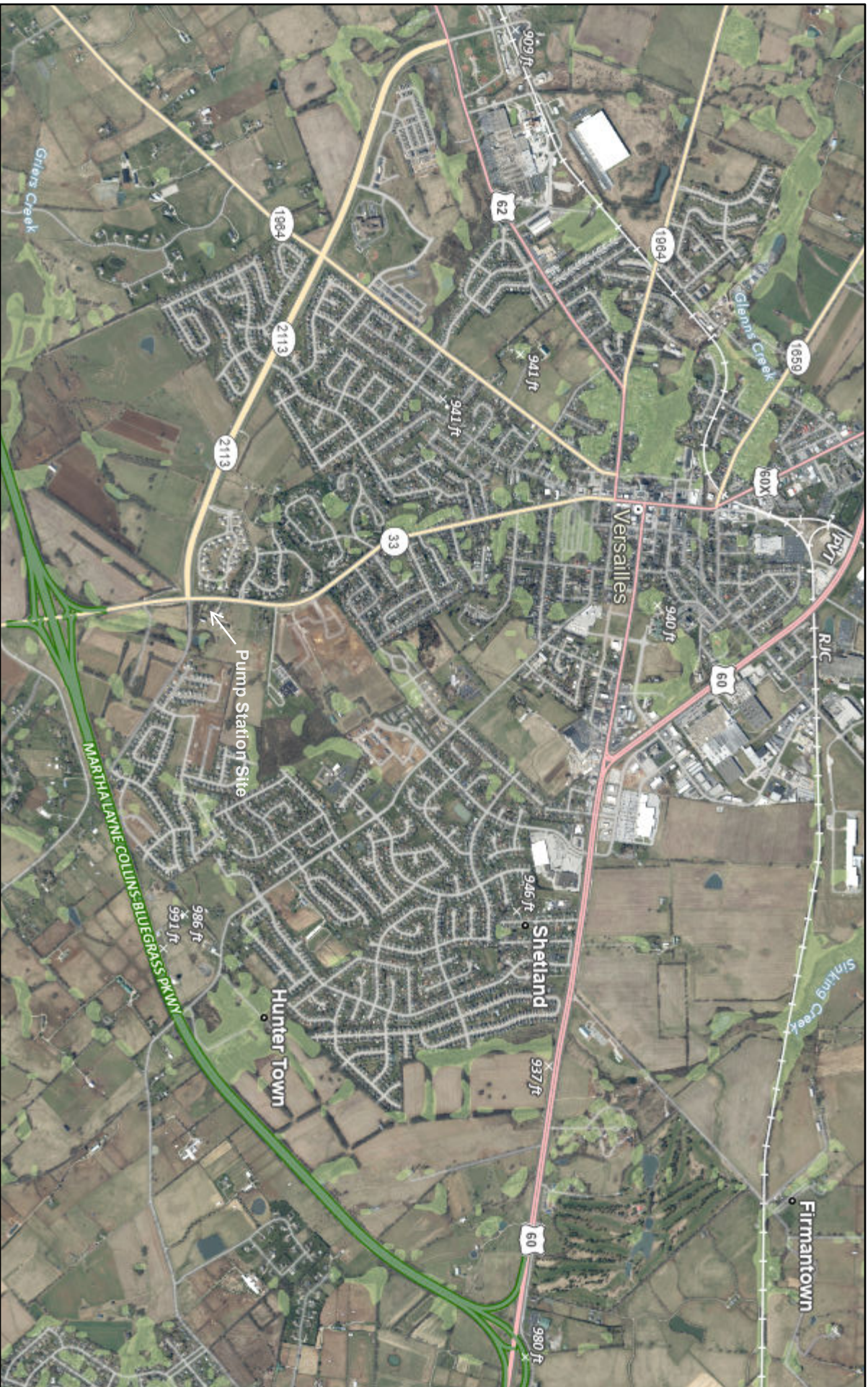
# KY 33 Pump Station Site



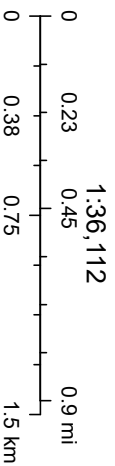
1/29/2024, 12:48:37 PM



# KY 33 Pump Station Site



1/29/2024, 12:50:16 PM



# **EXHIBIT 22**



**Bid Tabulation**  
**Contract 1 - KY 33 Pump Station Replacement Project**  
 South Woodford Water District  
 Bid Date: December 13, 2023 @ 9:00 AM local time


Project: 4347.01  
 Date: 12/13/2023  
 Engineer: JR  
 Page: 1

Item No.	Item	Quantity	Unit	United Pipeline		Frederick & May Construction		Smith Contractors		NAC Heavy Highway		Unit Price	Total
				Unit Price	Total	Unit Price	Total	Unit Price	Total	Unit Price	Total		
1	Demolition of the Existing Pump Station, as shown on the plans and described in the specifications	1	LS	\$60,000.00	\$60,000.00	\$38,000.00	\$38,000.00	\$40,000.00	\$40,000.00	\$52,000.00	\$52,000.00		\$0.00
2	Supervisory Control and Data Acquisition (SCADA) Control System Upgrade, including furnishing, installation, testing and placing into satisfactory operation	1	LS	\$25,000.00	\$25,000.00	\$34,700.00	\$34,700.00	\$40,000.00	\$40,000.00	\$52,000.00	\$52,000.00		\$0.00
3	Booster Pump Station, including but not limited to furnishing and installing pumps, piping, valves, controls, building, concrete, site work, access road, electric, fence, etc. (Complete in Place)	1	LS	\$595,400.00	\$595,400.00	\$644,279.00	\$644,279.00	\$673,000.00	\$673,000.00	\$790,000.00	\$790,000.00		\$0.00
<b>TOTAL BASE BID</b>					<b>\$680,400.00</b>		<b>\$716,979.00</b>		<b>\$753,000.00</b>		<b>\$874,000.00</b>		<b>\$0.00</b>

This is to state that the above is an accurate tabulation of bids received on December 13, 2023 by the South Woodford Water District for Contract 1 - KY 33 Pump Station Replacement Project.

Signed:   
 Jeff Reynolds  
 Kentucky PE No. 20469



 Indicates an error in the contractors bid.



# **EXHIBIT 23**

RESOLUTION 2024-01-09-2

**A RESOLUTION OF THE BOARD OF COMMISSIONERS OF SOUTH WOODFORD COUNTY WATER DISTRICT AWARDDING CONTRACT I – KY 33 PUMP STATION REHABILITATION OF THE SYSTEM IMPROVEMENTS PROJECT**

**WHEREAS**, South Woodford County Water District (“the District”) caused to be published in the November 22, 2023 edition of the *Woodford Sun* in accordance with the provisions of KRS Chapter 424 an advertisement for bids on Contract I - KY 33 Pump Station Rehabilitation of the System Improvements Project;

**WHEREAS**, the District received bids on Contract I from United Pipeline, Inc., of Tompkinsville, Kentucky, Frederick and May Construction Co. of West Liberty, Kentucky, Smith Contractors, Inc. of Lawrenceburg, Kentucky, and NAC Heavy Highway, Inc. of Lexington, Kentucky;

**WHEREAS**, on December 13, 2023, the District opened the bids received on Contract I - KY 33 Pump Station Rehabilitation;

**WHEREAS**, United Pipeline, Inc. of Tompkinsville, Kentucky, submitted a bid of \$680,400, which was the lowest of the submitted bids;

**WHEREAS**, Haworth-Meyer-Boleyn Professional Engineers, Inc., the project engineer, has reviewed all submitted bids and has recommended that Contract I - KY 33 Pump Station Rehabilitation be awarded to United Pipeline, Inc.; and,

**WHEREAS**, the District’s Board of Commissioners finds that Contract I - KY 33 Pump Station Rehabilitation should be awarded to United Pipeline, Inc. subject to the Kentucky Public Service Commission’s issuance of an Order granting a certificate of public convenience and necessity to the District for the System Improvements Project and authorizing the District to execute an Assistance Agreement with the Kentucky Infrastructure Authority for KIA Loan B22-02;

**NOW, THEREFORE, IT IS HEREBY RESOLVED BY THE BOARD OF COMMISSIONERS OF SOUTH WOODFORD COUNTY WATER DISTRICT 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 United Pipeline, Inc., of Tompkinsville, Kentucky, in the amount of \$680,400 to be the lowest responsive and responsible bid and awards Contract I - KY 33 Pump Station Rehabilitation to this firm, contingent upon the Kentucky Public Service Commission issuing an order granting a certificate of public convenience and necessity to the District for the System Improvements Project and authorizing the District to execute an Assistance Agreement with the Kentucky Infrastructure Authority for KIA Loan B22-02.

ADOPTED BY THE BOARD OF COMMISSIONERS OF SOUTH WOODFORD COUNTY WATER DISTRICT at a meeting held on January 9, 2024, signed by the Chairman, and attested by the Secretary.

  
\_\_\_\_\_  
David Hudson, Acting Chairman

ATTEST:

  
\_\_\_\_\_  
Edwin Robert Lippert II, Acting Secretary

**CERTIFICATION**

I, the undersigned, hereby certify that I am the duly qualified and acting Secretary of the South Woodford County Water District; that the foregoing is a full, true and correct copy of a Resolution adopted by the Board of Commissioners of the South Woodford County Water District at a meeting duly held on January 9, 2024; that said official action appears as a matter of public record in South Woodford County Water District's official records or journal; that said meeting was held in accordance with all applicable requirements of Kentucky law, including KRS 61.810, 61.815, 61.820 and 61.823; that a quorum was present at said meeting; that said official action has not been modified, amended, revoked or repealed and is now in full force and effect.

WITNESS my hand this 9th day of January 2024.

  
\_\_\_\_\_  
Edwin Robert Lippert II, Acting Secretary

# **EXHIBIT 24**

**ESTIMATED TOTAL PROJECT COST**

**Automated Meter Reading System**

Engineering Fees	\$ 20,000.00
Legal Fees*	\$ 9,780.00
Administration Fee*	\$ 12,225.00
Purchase/Installation Cost (As Bid)	\$742,798.50
Contingency*	<u>\$ 73,350.00</u>
<b>Total</b>	<b>\$858,153.50</b>

**Replacement of KY 33 Pump Station**

Engineering Fees	\$105,000.00
Legal Fees*	\$ 10,220.00
Property Survey of Pump Station Site	\$ 3,250
Land for Pump Station Site**	\$ 8,120
Administration Fee*	\$ 12,775.00
Construction Cost (As Bid)	\$680,400.00
Contingency*	<u>\$ 76,650.00</u>
<b>Total</b>	<b>\$896,415.00</b>

**Total System Improvements Cost** **\$1,754,568.50**

\* Common cost allocated to project based on the project's direct costs to total system improvement direct cost.

\*\* Recorded cost of tract upon which existing pump station sits and which will be transferred in exchange for tract upon which replacement pump station will sit.

# **EXHIBIT 25**

KENTUCKY INFRASTRUCTURE AUTHORITY  
 LOAN #B22-002  
 SOUTH WOODFORD WATER DISTRICT

UNOFFICIAL

2.00% Interest  
 \$67,915.98 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
12/01/24	\$45,615.98	\$22,300.00	2.00%	\$67,915.98	\$2,230.00	\$0.00	\$70,145.98	\$2,230,000.00	\$5,600.00	\$5,600.00
06/01/25	\$46,072.14	\$21,843.84	2.00%	\$67,915.98	\$2,184.38	\$0.00	\$70,100.36	\$2,184,384.02	\$0.00	\$5,600.00
12/01/25	\$46,532.86	\$21,383.12	2.00%	\$67,915.98	\$2,138.31	\$0.00	\$70,054.29	\$2,138,311.88	\$0.00	\$5,600.00
06/01/26	\$46,998.19	\$20,917.79	2.00%	\$67,915.98	\$2,091.78	\$0.00	\$70,007.76	\$2,091,779.02	\$0.00	\$11,200.00
12/01/26	\$47,468.17	\$20,447.81	2.00%	\$67,915.98	\$2,044.78	\$0.00	\$69,960.76	\$2,044,780.83	\$0.00	\$11,200.00
06/01/27	\$47,942.85	\$19,973.13	2.00%	\$67,915.98	\$1,997.31	\$0.00	\$69,913.29	\$1,997,312.66	\$0.00	\$5,600.00
12/01/27	\$48,422.28	\$19,493.70	2.00%	\$67,915.98	\$1,949.37	\$0.00	\$69,865.35	\$1,949,369.81	\$0.00	\$16,800.00
06/01/28	\$48,906.50	\$19,009.48	2.00%	\$67,915.98	\$1,900.95	\$0.00	\$69,816.93	\$1,900,947.53	\$0.00	\$5,600.00
12/01/28	\$49,395.57	\$18,520.41	2.00%	\$67,915.98	\$1,852.04	\$0.00	\$69,768.02	\$1,852,041.03	\$0.00	\$22,400.00
06/01/29	\$49,889.53	\$18,026.45	2.00%	\$67,915.98	\$1,802.65	\$0.00	\$69,718.63	\$1,802,645.46	\$0.00	\$5,600.00
12/01/29	\$50,388.42	\$17,527.56	2.00%	\$67,915.98	\$1,752.76	\$0.00	\$69,668.74	\$1,752,755.93	\$0.00	\$28,000.00
06/01/30	\$50,892.30	\$17,023.68	2.00%	\$67,915.98	\$1,702.37	\$0.00	\$69,618.35	\$1,702,367.51	\$0.00	\$5,600.00
12/01/30	\$51,401.23	\$16,514.75	2.00%	\$67,915.98	\$1,651.48	\$0.00	\$69,567.46	\$1,651,475.21	\$0.00	\$33,600.00
06/01/31	\$51,915.24	\$16,000.74	2.00%	\$67,915.98	\$1,600.07	\$0.00	\$69,516.05	\$1,600,073.98	\$0.00	\$39,200.00
12/01/31	\$52,434.39	\$15,481.59	2.00%	\$67,915.98	\$1,548.16	\$0.00	\$69,464.14	\$1,495,724.35	\$0.00	\$44,800.00
06/01/32	\$52,958.74	\$14,957.24	2.00%	\$67,915.98	\$1,495.72	\$0.00	\$69,411.70	\$1,442,765.61	\$0.00	\$5,600.00
12/01/32	\$53,488.32	\$14,427.66	2.00%	\$67,915.98	\$1,442.77	\$0.00	\$69,358.75	\$1,389,277.29	\$0.00	\$50,400.00
06/01/33	\$54,023.21	\$13,892.77	2.00%	\$67,915.98	\$1,389.28	\$0.00	\$69,305.26	\$1,335,254.08	\$0.00	\$5,600.00
12/01/33	\$54,563.44	\$13,352.54	2.00%	\$67,915.98	\$1,335.25	\$0.00	\$69,251.23	\$1,280,690.64	\$0.00	\$56,000.00
06/01/34	\$55,109.07	\$12,806.91	2.00%	\$67,915.98	\$1,280.69	\$0.00	\$69,196.67	\$1,225,581.57	\$0.00	\$5,600.00
12/01/34	\$55,660.16	\$12,255.82	2.00%	\$67,915.98	\$1,225.58	\$0.00	\$69,141.56	\$1,169,921.41	\$0.00	\$61,600.00
06/01/35	\$56,216.77	\$11,699.21	2.00%	\$67,915.98	\$1,169.92	\$0.00	\$69,085.90	\$1,113,704.64	\$0.00	\$67,200.00
12/01/35	\$56,778.93	\$11,137.05	2.00%	\$67,915.98	\$1,113.70	\$0.00	\$69,029.68	\$1,056,925.71	\$0.00	\$72,800.00
06/01/36	\$57,346.72	\$10,569.26	2.00%	\$67,915.98	\$1,056.93	\$0.00	\$68,972.91	\$999,578.99	\$0.00	\$78,400.00
12/01/36	\$57,920.19	\$9,995.79	2.00%	\$67,915.98	\$995.58	\$0.00	\$68,915.56	\$941,658.80	\$0.00	\$84,000.00
06/01/37	\$58,499.39	\$9,416.59	2.00%	\$67,915.98	\$941.66	\$0.00	\$68,857.64	\$883,159.41	\$0.00	\$89,600.00
12/01/37	\$59,084.39	\$8,831.59	2.00%	\$67,915.98	\$883.16	\$0.00	\$68,799.14	\$824,075.02	\$0.00	\$95,200.00
06/01/38	\$59,675.23	\$8,240.75	2.00%	\$67,915.98	\$824.08	\$0.00	\$68,740.06	\$764,399.79	\$0.00	\$100,800.00
12/01/38	\$60,271.98	\$7,644.00	2.00%	\$67,915.98	\$764.40	\$0.00	\$68,680.38	\$704,127.81	\$0.00	\$106,400.00
06/01/39	\$60,874.70	\$7,041.28	2.00%	\$67,915.98	\$704.13	\$0.00	\$68,620.11	\$643,253.11	\$0.00	\$112,000.00
12/01/39	\$61,483.45	\$6,432.53	2.00%	\$67,915.98	\$643.25	\$0.00	\$68,559.23	\$581,769.66	\$0.00	\$117,600.00
06/01/40	\$62,098.28	\$5,817.70	2.00%	\$67,915.98	\$581.77	\$0.00	\$68,497.75	\$519,671.38	\$0.00	\$123,200.00
12/01/40	\$62,719.27	\$5,196.71	2.00%	\$67,915.98	\$519.67	\$0.00	\$68,435.65	\$456,952.11	\$0.00	\$128,800.00
06/01/41	\$63,346.46	\$4,569.52	2.00%	\$67,915.98	\$456.95	\$0.00	\$68,372.93	\$393,605.65	\$0.00	\$134,400.00
12/01/41	\$63,979.92	\$3,936.06	2.00%	\$67,915.98	\$393.61	\$0.00	\$68,309.59	\$329,625.73	\$0.00	\$140,000.00
06/01/42	\$64,619.72	\$3,296.26	2.00%	\$67,915.98	\$329.63	\$0.00	\$68,245.61	\$265,006.01	\$0.00	\$145,600.00
12/01/42	\$65,265.92	\$2,650.06	2.00%	\$67,915.98	\$265.01	\$0.00	\$68,180.99	\$199,740.09	\$0.00	\$151,200.00
06/01/43	\$65,918.58	\$1,997.40	2.00%	\$67,915.98	\$199.74	\$0.00	\$68,115.72	\$133,821.51	\$0.00	\$156,800.00
12/01/43	\$66,577.76	\$1,338.22	2.00%	\$67,915.98	\$133.82	\$0.00	\$68,049.80	\$67,243.75	\$0.00	\$162,400.00
06/01/44	\$67,243.75	\$672.23	2.00%	\$67,915.98	\$67.24	\$0.00	\$67,983.22	\$0.00	\$0.00	\$168,000.00
<b>Totals</b>	<b>\$2,230,000.00</b>	<b>\$486,639.20</b>		<b>\$2,716,639.20</b>	<b>\$48,663.95</b>	<b>\$0.00</b>	<b>\$2,765,303.15</b>		<b>\$112,000.00</b>	



# **EXHIBIT 26**

**KENTUCKY INFRASTRUCTURE AUTHORITY**  
**Minutes of the Full Board**

**Meeting Date/Location: April 7, 2022 – 1:00 p.m.**  
**Kentucky Infrastructure Authority**  
**Via Teleconference**

**Members present:**

Mr. Dennis Keene, Commissioner, Department for Local Government  
Ms. Linda Bridwell, Executive Director, Public Service Commission  
Ms. Holly M. Johnson, Secretary, Finance and Administration Cabinet  
Mr. Carey Johnson, proxy for Secretary Rebecca Goodman, Energy and Environment Cabinet  
Mr. Ron Lovan, Representing the Kentucky Section of the American Water Works Association  
Judge Mark McKenzie, representing Kentucky Association of Counties  
Mr. Russell Rose, representing Kentucky Rural Water Association  
Mayor Les Stapleton, representing Kentucky League of Cities

**Members absent:**

Mr. Robert A. Amato, representing Kentucky Municipal Utilities Association  
Mr. David R. Farrar, representing for Profit Water Companies  
Ms. Kristina Slattery proxy for Interim Secretary Larry Hayes, Cabinet for Economic Development

**DLG Staff:**

Mr. Eddie Jacobs, Chief of Staff  
Ms. Mary Palmer, Executive Assistant

**KIA Staff:**

Ms. Sandy Williams, Executive Director  
Mr. Milward Dedman, Deputy Executive Director  
Ms. Julie Bickers, Regional Compliance Coordinator  
Mr. John Brady, Financial Analyst  
Mr. Jim Carpenter, Fiscal Officer & KIA Treasurer  
Ms. Carmen Ignat, Financial Analyst  
Ms. Debbie Landrum, Regional Compliance Coordinator  
Ms. Meg Link, Administrative Specialist III and KIA Secretary  
Mr. Roger Recktenwald, Grants Administrator  
Mr. Don Schierer, WRIS Resource Management Analyst  
Mr. Tom Schubert, GIS Specialist

**Guests:**

Mr. Brandon Baxter, South Woodford Water District  
Ms. Bethany Couch, Office of Financial Management  
Mr. Matthew Coyle, South Woodford Water District  
Mr. Barry Drury, South Woodford Water District  
Ms. Katherine Halloran, Legislative Research Commission  
Ms. Karyn Leverenz, Bluegrass Area Development District  
Mr. Bobby Lippert, South Woodford Water District  
Mr. Russell Neal, Division of Water  
Mr. Jeff Reynolds, HMB, Inc.  
Mr. Korey Sallee, Legislative Research Commission  
A room was available for the public to attend, but no one attended in person.

## **I. PROCEEDINGS**

Commissioner Dennis Keene called the meeting of the Kentucky Infrastructure Authority (KIA) Board to order. He noted that the media advisory was completed as required. He confirmed a quorum was present.

He noted that there were new requirements for today's meeting. He asked Meg Link, Board Secretary to read the following:

*Pursuant to Senate Joint Resolution 150 affecting open meetings held by video conference the following compliance is required:*

- 1. A physical location for the public to attend and view proceedings. That location for purposes of the Kentucky Infrastructure Authority will be the KIA Boardroom, 100 Airport Road, Third Floor, Frankfort, Kentucky 40601.*
- 2. All members in attendance must keep their video on at all times; your audio may be muted. If the video is interrupted, the interruption will result in the suspension of the meeting until such time as video is restored.*

### **A. BUSINESS (Board Action Required)**

#### **1. APPROVAL OF MINUTES**

***For: KIA Regular Board Meeting of March 3, 2022***

***Mr. Russ Rose moved to approve the minutes of the March 3, 2022, regular board meeting. Mr. Ron Lovan seconded, and the motion carried unanimously.***

### **B. NEW PROJECTS/ACTION ITEMS**

- 1. A RESOLUTION AND ORDER OF THE BOARD OF DIRECTORS OF THE KENTUCKY INFRASTRUCTURE AUTHORITY AUTHORIZING ISSUANCE OF A CONDITIONAL COMMITMENT FOR AN INFRASTRUCTURE REVOLVING FUND LOAN (B22-002) FOR AN AMOUNT UP TO \$2,230,000 TO THE SOUTH WOODFORD WATER DISTRICT, WOODFORD COUNTY, KENTUCKY**

Mr. John Brady, KIA, discussed the South Woodford Water District's request for a Fund B loan in an amount up to \$2,230,000 for the Comprehensive System Rehabilitation project. This project consists of repairs to several components within the water system necessary to maintain adequate service to customers.

Both the Mortonville and KY33 water tanks are in dire need of repair. The Mortonville tank is currently out of service and needs to be sanitized and painted before it can be put back into service. Rehabilitation of the KY33 pump station will include replacing the backup pump and piping. All meters will be replaced to greatly enhance the accuracy of readings. Current meters are not working properly and some are not working at all. Leak detection meters will also be installed throughout the system to help control the SWWD's issue with excess water loss.

The SWWD currently serves over 1,600 residential and commercial customers.

Ms. Linda Bridwell asked if the current meters were radio read. Mr. Matthew Coyle, with the South Woodford Water District, replied that all the meters are manually read presently. Ms. Bridwell asked about their current water loss situation. He noted there was a water loss of 33.56% for last month.

**Ms. Linda Bridwell abstained from voting. Mayor Les Stapleton moved to approve the Fund B Loan, (B22-002), for an amount up to \$2,230,000 to the South Woodford Water District with the standard conditions and the following special condition: By May 31, 2022, the SWWD will need a resolution from the SWWD Board, demonstrating their intentions to increase revenues as necessary and authorized by the PSC to meet the loan requirements over the life of the loan. KIA Staff review currently indicates that revenues will need to increase by an estimated \$50,000 annually by January 1, 2024, which equates to an approximate rate increase of 5%, to meet expenses and maintain the 1.1 debt coverage ratio in 2024. Mr. Carey Johnson seconded and the motion was unanimously approved.**

**2. 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.

<b>BORROWER</b>	<b>FUND</b>	<b>AMOUNT UP TO</b>
South Woodford Water District	B22-002	\$2,230,000

***Ms. Linda Bridwell made the motion to approve the Capital Reimbursement Resolution. Mr. Ron Lovan seconded and the motion unanimously approved.***

**II. EXECUTIVE DIRECTOR'S REPORT**

Director Williams addressed the group. She noted issues pertaining to the Legislative Session:

Highlights pertaining to KIA:

- An eight percent salary increase provided for eligible state government employees, effective July 1, 2022, on the base salary or wages.
- An additional \$250 million for Cleaner Water Program grants. We will take applications, make sure they are eligible, and provide a list by county to LRC by November 1, 2022. LRC will award the grants; KIA will distribute the checks. Only \$75,000 for administration
- Office of Broadband – funded both years
- New Water Management Assistance Fund established and funded with \$10 million. Provide a report to LRC by December 1 of each year.
- Line item appropriations in 6 groups for 15 projects, which total \$58.85 million
- Marzetti Horse Cave Plant in Hart County - \$8 million

- Regional Water Supply Improvements (Ford Blue Oval SK Battery Park) - \$35 million
  - \$5,000,000 for Bullitt County Fiscal Court
  - \$10,000,000 for Hardin County Fiscal Court
  - \$10,000,000 for Meade County Fiscal Court
  - \$10,000,000 for Nelson County Fiscal Court
- Red River Gorge Water and Sewer Upgrades - \$11 million
  - \$3,000,000 for Beattyville Water Treatment Plant Upgrades
  - \$2,000,000 for Beattyville Water Distribution System Improvements
  - \$1,000,000 for Powell's Valley Water Distribution System Improvements
  - \$1,000,000 for Stanton Water Distribution System Improvements
  - \$1,000,000 for Campton Water Distribution System Improvements
  - \$2,000,000 for Powell's Valley Treatment Plant Expansion
  - \$1,000,000 for Powell's Valley Collection System Expansion
- \$5,000,000 for Georgetown Municipal Water and Sewer Service for the construction of an elevated storage tank
- \$400,000 City of Wilder Public Works Department for the Fredericks Landing Park Wastewater Project.
- Corbin Utility Commission - \$450,000 for water and sewer line upgrades
- CWSRF base and supplemental state match funded
- DWSRF base and supplemental state match funded
- Fund B will get an additional \$25 million
- 2006 line item grant reauthorized and reallocated to Greenup Rt.1 Line Upgrade \$177,000

**HB 315** - Delivered to the governor March 30, creates the Office of Broadband, administratively attached to KIA, creates a rural infrastructure improvement fund to support the replacement of utility poles for broadband

**HB 758** - Delivered to the governor March 30, this is the bill amending the definition of governmental agency to include water associations and will allow KIA to enter into financial agreements with water associations. Creates a new Water Management Assistance Fund.

### III. ANNOUNCEMENTS/NOTIFICATIONS

Next regularly scheduled KIA board meeting:  
**Thursday, May 5, 2022 at 1:00 p.m.**

***There being no further business, Mayor Les Stapleton moved to adjourn. Ms. Linda Bridwell seconded and the motion carried unanimously. The April 7, 2022 meeting of the Board of the Kentucky Infrastructure Authority was adjourned.***

Submitted by:

*Margaret F. Link*  
Kentucky Infrastructure Authority Secretary

*April 12, 2022*  
Date

# **EXHIBIT 27**



**KENTUCKY INFRASTRUCTURE AUTHORITY**

**Andy Beshear**  
Governor

100 Airport Road  
Frankfort, Kentucky 40601  
(502) 573-0260  
kia.ky.gov

**Sandy Williams**  
Executive Director

April 8, 2022

Chairman Barry Drury,  
South Woodford Water District  
117 D Crossfield Dr  
Versailles, KY 40383

**KENTUCKY INFRASTRUCTURE AUTHORITY  
INFRASTRUCTURE REVOLVING LOAN FUND  
CONDITIONAL COMMITMENT LETTER (B22-002)**

Dear Chairman Drury:

The Kentucky Infrastructure Authority ("the Authority") commends your efforts to improve public service facilities in your community. On April 7, 2022, the Authority approved your loan for the SWWD - Comprehensive System Rehabilitation Project subject to the conditions stated in Attachment A to this letter. The total cost of the project shall not exceed \$2,705,000, without prior authorization of the Authority, of which the Authority loan shall provide \$2,230,000 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 the South Woodford Water District upon satisfactory performance of the conditions set forth in Attachment A. You must meet the conditions set forth in Attachment A and enter into an Assistance Agreement by April 8, 2023 (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.



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,




Sandy Williams  
Executive Director

Attachments

cc: Karyn Leverenz, Bluegrass ADD  
Haworth, Meyer & Boleyn, Inc., Jeff Reynolds

Please sign and return a copy of this letter indicating your acceptance of this commitment and its terms. 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. These forms and an SRF loan checklist guide can be found in Attachment C of this letter.

  
Accepted

5/10/22  
Date



## Conditions

South Woodford Water District  
B22-002

The Assistance Agreement and this commitment shall be subject, but not limited to, the following terms:

1. The Authority project loan shall not exceed \$2,230,000.
2. The loan shall bear interest at the rate of 2.0% per annum commencing with the first draw of funds.
3. The loan shall be repaid over a period not to exceed 20 years from the date of the last draw of funds.
4. Interest shall be payable on the 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 authorization form in Attachment C of this letter to U.S. Bank for processing.
5. Full principal payments will commence on June 1, or December 1, immediately succeeding the date of the last draw of funds, provided that if such June 1, or December 1, shall be less than three months since the date of the last draw of funds, then the first principal payment date shall be the June 1, or December 1, which is at least six months from the date of the last draw of funds. Full payments will be due each six months thereafter until the loan is repaid.
6. A loan servicing fee of 0.20% of the outstanding loan balance shall be payable to the Authority as a part of each interest payment.
7. Loan funds will only be disbursed after execution of the Assistance Agreement as project costs are incurred.

8. The Authority loan funds must be expended within six months of the official date of initiation of operation.
9. The Authority requires that an annual financial audit be provided for the life of the loan.
10. The final Assistance Agreement must be approved by ordinance or resolution, as applicable, of the city council or appropriate governing board.
11. 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. Upon completion of final design of the facilities in the attached project description, favorable approval shall be obtained of such design by all appropriate parties as required by Kentucky statute or administrative regulation.
2. The Borrower must provide certification from their legal counsel stating 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 state and local procurement laws.
3. Documentation of final funding commitments from all parties other than the Authority as reflected in the Attachment B description shall be provided prior to preparation of the Assistance Agreement and disbursement of the loan monies. Rejections of any anticipated project funding, or any new funding sources not reflected in Attachment B shall be immediately reported and may cause this loan to be subject to further consideration.
4. Upon receipt of construction bids a tabulation of such bids and engineer's recommendations on compliance with bid specifications and recommendation for award, shall be forwarded to the Authority for final approval and sizing of this loan and the project.

5. 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. Any special conditions listed in Attachment B must be satisfied before the project is presented before the Committee.
6. 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.
7. 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 your consultant engineer.
8. All easements or purchases of land shall be completed prior to commencement of construction. Certification of all land or easement acquisitions shall be provided to the Authority.
9. The Borrower must provide documentation of Clearinghouse Endorsement and Clearinghouse Comments.
10. The Borrower must complete and return the "Authorization for Electronic Deposit of Borrower Payment" form in Attachment C of this letter to U.S. Bank.
11. The Borrower will 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.
12. The Borrower will provide Final Design Plans in an AutoCAD Drawing File Format (DWG), referenced to the appropriate (North, South or Single) Kentucky State Plane Coordinate System (NAD83-Survey Feet) on a Compact Disc (CD). The recipient shall provide the Authority a digital copy (pdf) of the record drawings from the project within three months of construction completion.

Any special conditions listed in Attachment B must be resolved.

Executive Summary and Credit Analysis

South Woodford Water District  
B22-002

<b>EXECUTIVE SUMMARY</b>		Reviewer	John Brady	
<b>KENTUCKY INFRASTRUCTURE AUTHORITY</b>		Date	April 7, 2022	
<b>FUND B, INFRASTRUCTURE</b>		KIA Loan Number	B22-002	
<b>REVOLVING LOAN FUND</b>		WRIS Number	WX21239038	
<b>BORROWER</b>		SOUTH WOODFORD WATER DISTRICT WOODFORD COUNTY		
<b>BRIEF DESCRIPTION</b>				
The South Woodford Water District (SWWD) is requesting a Fund B loan in the amount of \$2,230,000 for the Comprehensive System Rehabilitation project. This project consists of repairs to several components within the water system necessary to maintain adequate service to customers. These include the rehabilitation of two storage tanks and a pump station and the replacement of all water meters. Radio read meters and leak detection meters will be installed to improve reading accuracy and help control the SWWD's issue with excess water loss.				
<b>PROJECT FINANCING</b>		<b>PROJECT BUDGET</b>		
Fund B Loan	\$2,230,000	Administrative Expenses	RD Fee %	Actual %
CWP Grant	225,000	Legal Expenses		\$25,000
ARPA	250,000	Land, Easements		10,000
		Planning		5,000
		Eng - Design / Const	7.5%	6.0%
		Eng - Insp	4.4%	2.7%
		Construction		145,000
		Contingency		65,000
		Other		2,375,000
<b>TOTAL</b>	<u>\$2,705,000</u>	<b>TOTAL</b>		<u>\$2,705,000</u>
<b>REPAYMENT</b>	Rate	2.00%	Est. Annual Payment	\$140,292
	Term	20 Years	1st Payment	6 Mo. after first draw
<b>PROFESSIONAL SERVICES</b>	Engineer	Haworth, Meyer & Boleyn, Inc.		
	Bond Counsel	Rubin & Hays		
<b>PROJECT SCHEDULE</b>	Bid Opening	Sep-22		
	Construction Start	Jan-23		
	Construction Stop	Jul-23		
<b>DEBT PER CUSTOMER</b>	Existing	\$438		
	Proposed	\$1,704		
<b>OTHER DEBT</b>	See Attached			
<b>RESIDENTIAL RATES</b>	Current	Users	Avg. Bill	
		1,638	\$30.46	(for 4,000 gallons)
<b>REGIONAL COORDINATION</b>	This project is consistent with regional planning recommendations.			
<b>CASHFLOW</b>	Cash Flow Before Debt Service	Debt Service	Cash Flow After Debt Service	Coverage Ratio
Audited 2018	137,485	117,972	19,513	1.2
Audited 2019	97,679	117,000	(19,321)	0.8
Audited 2020	66,537	106,065	(39,528)	0.6
Projected 2021	53,790	82,095	(28,305)	0.7
Projected 2022	133,972	82,745	51,227	1.6
Projected 2023	211,173	152,684	58,489	1.4
Projected 2024	251,661	223,684	27,977	1.1
Projected 2025	244,744	223,851	20,893	1.1

**SOUTH WOODFORD WATER DISTRICT  
FINANCIAL SUMMARY (DECEMBER YEAR END)**

	<b>Audited 2018</b>	<b>Audited 2019</b>	<b>Audited 2020</b>	<b>Projected 2021</b>	<b>Projected 2022</b>	<b>Projected 2023</b>	<b>Projected 2024</b>	<b>Projected 2025</b>
<b>Balance Sheet</b>								
<b>Assets</b>								
Current Assets	197,420	193,402	123,517	117,850	135,395	154,593	164,189	168,367
Other Assets	3,182,353	3,095,802	3,080,888	2,957,898	2,898,534	5,487,954	5,347,964	5,202,307
<b>Total</b>	<b>3,379,773</b>	<b>3,289,204</b>	<b>3,204,405</b>	<b>3,075,748</b>	<b>3,033,929</b>	<b>5,642,547</b>	<b>5,512,153</b>	<b>5,370,674</b>
<b>Liabilities &amp; Equity</b>								
Current Liabilities	193,468	213,639	185,603	189,826	193,326	309,526	313,826	318,126
Long Term Liabilities	767,367	717,000	667,900	615,800	561,400	2,622,000	2,449,600	2,274,200
<b>Total Liabilities</b>	<b>960,835</b>	<b>930,639</b>	<b>853,503</b>	<b>805,626</b>	<b>754,726</b>	<b>2,931,526</b>	<b>2,763,426</b>	<b>2,592,326</b>
<b>Net Assets</b>	<b>2,418,938</b>	<b>2,358,565</b>	<b>2,350,902</b>	<b>2,270,122</b>	<b>2,279,203</b>	<b>2,711,021</b>	<b>2,748,727</b>	<b>2,778,348</b>
<b>Cash Flow</b>								
Revenues	836,853	883,687	856,470	856,470	943,170	1,032,618	1,079,887	1,079,887
Operating Expenses	716,439	794,969	812,484	818,874	825,392	837,640	844,421	851,338
Other Income	17,071	8,961	22,551	16,194	16,194	16,195	16,195	16,195
<b>Cash Flow Before Debt Service</b>	<b>137,485</b>	<b>97,679</b>	<b>66,537</b>	<b>53,790</b>	<b>133,972</b>	<b>211,173</b>	<b>251,661</b>	<b>244,744</b>
<b>Debt Service</b>								
Existing Debt Service	117,972	117,000	106,065	82,095	82,745	82,538	83,392	83,559
Proposed KIA Loan	0	0	0	0	0	70,146	140,292	140,292
<b>Total Debt Service</b>	<b>117,972</b>	<b>117,000</b>	<b>106,065</b>	<b>82,095</b>	<b>82,745</b>	<b>152,684</b>	<b>223,684</b>	<b>223,851</b>
<b>Cash Flow After Debt Service</b>	<b>19,513</b>	<b>(19,321)</b>	<b>(39,528)</b>	<b>(28,305)</b>	<b>51,227</b>	<b>58,489</b>	<b>27,977</b>	<b>20,893</b>
<b>Ratios</b>								
Current Ratio	1.0	0.9	0.7	0.6	0.7	0.5	0.5	0.5
Debt to Equity	0.4	0.4	0.4	0.4	0.3	1.1	1.0	0.9
Days Sales in Accounts Receivable	28.2	30.4	30.7	30.7	30.7	30.7	30.7	30.7
Months Operating Expenses in Unrestricted Cash	1.6	1.2	0.8	0.7	0.8	1.0	1.0	1.1
Debt Coverage Ratio	1.2	0.8	0.6	0.7	1.6	1.4	1.1	1.1

Reviewer: John Brady  
 Date: April 7, 2022  
 Loan Number: B22-002

**KENTUCKY INFRASTRUCTURE AUTHORITY  
 INFRASTRUCTURE REVOLVING LOAN FUND (FUND B)  
 SOUTH WOODFORD WATER DISTRICT, WOODFORD COUNTY  
 PROJECT REVIEW  
 WX21239038**

**I. PROJECT DESCRIPTION**

The South Woodford Water District (SWWD) is requesting a Fund B loan in the amount of \$2,230,000 for the Comprehensive System Rehabilitation project. This project consists of repairs to several components within the water system necessary to maintain adequate service to customers.

Both the Mortonsville and KY33 water tanks are in dire need of repair. The Mortonsville tank is currently out of service and needs to be sanitized and painted before it can be put back into service. Rehabilitation of the KY33 pump station will include replacing the backup pump and piping. All meters will be replaced to greatly enhance the accuracy of readings. Current meters are not working properly and some are not working at all. Leak detection meters will also be installed throughout the system to help control the SWWD's issue with excess water loss.

The SWWD currently serves over 1,600 residential and commercial customers.

**II. PROJECT BUDGET**

	<u>Total</u>
Administrative Expenses	\$ 25,000
Legal Expenses	10,000
Land, Easements	5,000
Planning	15,000
Engineering Fees - Design	115,000
Engineering Fees - Construction	30,000
Engineering Fees - Inspection	65,000
Construction	2,375,000
Contingency	30,000
Other	35,000
<b>Total</b>	<b>\$ 2,705,000</b>

**III. PROJECT FUNDING**

	Amount	%
Fund B Loan	\$ 2,230,000	82%
CWP Grant	225,000	8%
ARPA	250,000	9%
<b>Total</b>	<b>\$ 2,705,000</b>	<b>100%</b>

**IV. KIA DEBT SERVICE**

Construction Loan	\$ 2,230,000
Less: Principal Forgiveness	0
Amortized Loan Amount	\$ 2,230,000
Interest Rate	2.00%
Loan Term (Years)	20
Estimated Annual Debt Service	\$ 135,832
Administrative Fee (0.20%)	4,460
<b>Total Estimated Annual Debt Service</b>	<b>\$ 140,292</b>

**V. PROJECT SCHEDULE**

Bid Opening	September 2022
Construction Start	January 2023
Construction Stop	July 2023

**VI. RATE STRUCTURE**

**A. Customers**

Customers	Current
Residential	1,617
Commercial	21
<b>Total</b>	<b>1,638</b>

**B. Rates**

<b>Water</b>	Proposed	Current	Prior
Date of Last Rate Increase	07/01/22	08/01/18	07/01/13
Minimum (2,000 gallons)	\$22.82	\$20.48	\$20.20
Over 2,000 gallons (per 1,000)	5.56	4.99	4.85
Cost for 4,000 gallons	\$33.94	\$30.46	\$29.90
Increase %	11.4%	1.9%	
Affordability Index (Rate/MHI)	0.5%	0.5%	



## VII. DEMOGRAPHICS

Based on current Census data from the American Community Survey 5-Year Estimate 2016-2020, the Utility's service area population was 3,906 with a Median Household Income (MHI) of \$81,030. The median household income for the Commonwealth is \$50,589. The project will qualify for a 2.00% interest rate.

## VIII. FINANCIAL ANALYSIS

Financial information was obtained from the audited financial statements for the years ended January 1, 2018 through December 31, 2020. Percentage references in the History section below are based on whole dollar amounts and not the rounded amounts presented.

### HISTORY

Water revenues increased 2.3% from \$836,853 in 2018 to \$856,470 in 2020. Operating expenses increased 13.4% from \$716,439 to \$812,484 during the same period due to costs associated with excess water loss. The debt coverage ratio was 1.2, 0.8, and 0.6 in 2018, 2019, and 2020.

The balance sheet reflects a current ratio of 0.7, a debt to equity ratio of 0.4, 30.7 days of sales in accounts receivable, and 0.8 months of operating expenses in unrestricted cash.

### PROJECTIONS

Projections are based on the following assumptions:

- 1) Water revenues will increase 5.7% in both 2022 and 2023 due to a proposed rate increase with an anticipated effective date of July 1, 2022.
- 2) Water loss reduction surcharge of \$3.87 per customer per month will generate an additional \$77,000 each year for four years.
- 3) Revenues will increase approximately \$50,000 in 2024 to maintain the 1.1 debt coverage ratio requirement.
- 4) SWWD receives Public Service Commission (PSC) approval documentation.
- 5) Operating expenses will increase 2% annually due to inflation.
- 6) Debt service coverage is 1.4 in 2023 when principal and interest repayments begin.

Based on the pro forma assumptions, the utility shows adequate cash flow to repay the KIA Fund B loan.

The SWWD is regulated by the PSC and will need to apply to the PSC, pursuant to KRS 278.300, for debt authorization for the \$2,230,000 loan. The SWWD must receive a Certificate of Public Convenience and Necessity, pursuant to KRS 278.020.

**REPLACEMENT RESERVE**

The replacement reserve will be 5% (\$112,000 total) of the final amount borrowed to be funded annually (\$5,600 yearly) each December 1 for 20 years and maintained for the life of the loan.

**IX. DEBT OBLIGATIONS**

	<u>Outstanding</u>	<u>Maturity</u>
1996A Revenue Bonds	\$ 137,000	2026
1996B Revenue Bonds	35,700	2026
1999A Revenue Bonds	211,000	2039
1999B Revenue Bonds	37,300	2039
KRWFC Note	<u>296,000</u>	2037
<b>Total</b>	<b>\$ 717,000</b>	

**X. CONTACTS**

<b>Legal Applicant</b>	
Entity Name	South Woodford Water District
Authorized Official	Barry Drury (Chairman)
County	Woodford
Email	barry.drury@me.com
Phone	(859) 618-9722
Address	117 D Crossfield Dr Versailles, KY 40383

<b>Applicant Contact</b>	
Name	Matthew Coyle
Organization	South Woodford Water District
Email	office@southwoodfordwater.com
Phone	(859) 873-1308
Address	117 D Crossfield Dr Versailles, KY 40383

**Project Administrator**

Name	Karyn Leverenz
Organization	Bluegrass ADD
Email	kleverenz@bgadd.org
Phone	(859) 269-8021
Address	699 Perimeter Dr Lexington, KY 40517

**Consulting Engineer**

PE Name	Jeff Reynolds
Firm Name	Haworth, Meyer & Boleyn, Inc.
Email	jdreynolds@hmbpe.com
Phone	(502) 695-9800
Address	3 Hmb Circle Frankfort, KY 40601

**XI. RECOMMENDATIONS**

KIA staff recommends approval of the loan with the standard conditions and the following special condition:

By May 31, 2022, the SWWD will need a resolution from the SWWD Board, demonstrating their intentions to increase revenues as necessary and authorized by the PSC to meet the loan requirements over the life of the loan. KIA Staff review currently indicates that revenues will need to increase by an estimated \$50,000 annually by January 1, 2024, which equates to an approximate rate increase of 5%, to meet expenses and maintain the 1.1 debt coverage ratio in 2024.

Forms

South Woodford Water District  
B22-002

## Fund B/C LOAN CONDITIONS CHECKLIST

Congratulations on receiving a conditional commitment of funding from KIA's Fund B/C Loan 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](mailto:Julie.Bickers@ky.gov), 502-892-3455): Purchase, Pennyrile, Green River, Barren River, Lake Cumberland, Big Sandy, Kentucky River, Cumberland Valley
- Debbie Landrum ([Debbie.Landrum@ky.gov](mailto:Debbie.Landrum@ky.gov), 502-892-3454): Lincoln Trail, KIPDA, Northern KY, Bluegrass, Buffalo Trace, Gateway, FIVCO

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 agency.

Submit To:	
KIA	<input type="checkbox"/> <b>Conditional Commitment Letter</b> (this letter is sent to the borrower via email shortly following KIA board approval and is to be signed by the authorizing official)
USBANK	<input type="checkbox"/> <b>Authorization for Electronic Deposit/Debit of Borrower Disbursements/ Payment</b> (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 to US Bank)
KIA	<input type="checkbox"/> <b>Ecclearinghouse Endorsement</b> (if not already submitted with loan application)
DOW	<input type="checkbox"/> <b>Plans and specifications</b> (Kentucky Division of Water will review and KIA will need copy of approval letter)
KIA	<input type="checkbox"/> <b>Proof of compliance with any special condition identified in the Conditional Commitment Letter</b> (e.g. adopted ordinance).

After the project has opened bids, please submit the following items to the designated agency assigned below. It is imperative that the remaining standard conditions are fulfilled by the deadlines set forth in the Conditional Commitment Letter.

Submit To:	
KIA	<input type="checkbox"/> <b>Bid Advertisement</b>
KIA	<input type="checkbox"/> <b>Bid Tabulation and Engineer's Recommendation</b>
KIA	<input type="checkbox"/> <b>As-Bid Budget</b>
KIA	<input type="checkbox"/> <b>Procurement Certification</b> (KIA sends to borrower after bid opening for signature.)
KIA	<input type="checkbox"/> <b>Certification of obtainable revenue projections</b> (KIA sends to borrower after bid opening for signature.)
KIA	<input type="checkbox"/> <b>Certification of clear site</b> (KIA sends to borrower after bid opening for signature.)
	<input type="checkbox"/>
	<input type="checkbox"/>

KIA **Plans and specifications approval** from the Kentucky Division of Water

KIA **Public Service Commission (PSC) approval**, (CPCN and Authorization to Incur Debt) if applicable.

AUTHORIZATION FOR ELECTRONIC DEPOSIT  
OF BORROWER PAYMENT  
KENTUCKY INFRASTRUCTURE AUTHORITY  
KIA Loan # \_\_\_\_\_

**Borrower Information:**

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: KY Zip: \_\_\_\_\_  
Federal I.D. #: \_\_\_\_\_ Telephone: \_\_\_\_\_  
Contact Name: \_\_\_\_\_  
Email: \_\_\_\_\_

**Financial Institution Information:**

Bank Name: \_\_\_\_\_  
Branch: \_\_\_\_\_ Telephone: \_\_\_\_\_  
City: \_\_\_\_\_ State: KY 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: \_\_\_\_\_

Send to: U.S. Bank via Email  
[KentuckyInfrastructureAuth@usbank.com](mailto:KentuckyInfrastructureAuth@usbank.com)

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 Checking  Savings  (specify type) account indicated below at the bank named below:

BANK NAME \_\_\_\_\_ BRANCH \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP CODE \_\_\_\_\_  
BANK TRANSIT/ABA NO. \_\_\_\_\_ ACCOUNT NO. \_\_\_\_\_

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 \_\_\_\_\_ Dated \_\_\_\_\_  
Authorized Signer

Send to: U.S. Bank via Email  
[KentuckyInfrastructureAuth@usbank.com](mailto:KentuckyInfrastructureAuth@usbank.com)



**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:	
Unique Entity ID (generated by SAM.gov)*:	
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 Unique Entity ID provided above is registered under a different name than the recipient of funding, please provide the registration name below:

Unique Entity ID Name	
-----------------------	--

\*If the recipient has not yet obtained a Unique Entity ID, 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.

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?	

Unique Entity ID Registration Information: <https://sam.gov>

**COMPLETE AFTER BID OPENING**

**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**

# SAMPLE LETTER

[Letterhead of Counsel for Water Utility]

[Date]

Kentucky Infrastructure Authority  
1024 Capital Center Drive, Suite 340  
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,

# **EXHIBIT 28**

## **CAPITAL PROJECTS AND BOND OVERSIGHT COMMITTEE**

### **Minutes**

**May 19, 2022**

#### **Call to Order and Roll Call**

The Capital Projects and Bond Oversight Committee was held on Thursday, May 19, 2022, at 1:00 PM, in Room 169 of the Capitol Annex. Representative Chris Freeland, Chair, called the meeting to order, and the secretary called the roll.

Present were:

Members: Representative Chris Freeland, Co-Chair; Senators Christian McDaniel and Robin L. Webb; and Representatives Jason Petrie and Walker Thomas.

Guests: Bart Hardin, Executive Director of Government Relations, University of Kentucky; Jeff Spoelker, Associate Athletic Director for Finance, University of Louisville Athletics; Kevin Cardwell, Deputy State Budget Director, Office of State Budget Director; Scott Aubrey, Director, Division of Real Properties, Department for Facilities and Support Services; Sandy Williams, Executive Director, Kentucky Infrastructure Authority; Katie Smith, Deputy Secretary and Commissioner, Department for Financial Services, Cabinet for Economic Development; and Ryan Barrow, Executive Director, Office of Financial Management.

LRC Staff: Katherine Halloran, Committee Staff Administrator; Korey Sallee, Committee Analyst; and Liz Hardy, Committee Assistant.

#### **Approval of Minutes (February 22, 2022, March 15, 2022, and April 13, 2022)**

Representative Petrie moved to approve the February 22, 2022; March 15, 2022; and April 13, 2022, meeting minutes. Representative Thomas seconded the motion and the committee approved without objection.

#### **Information Items**

Ms. Halloran referenced nine information items. Pursuant to KRS 45.760(5), the University of Kentucky reported a \$206,500 hardware in the loop simulator purchase for its SPARK laboratory with private funds. The University of Louisville reported a \$445,500 sequencing system purchase for its genomics facility with National Institute of General Medical Sciences IDeA Network of Biomedical Research Excellence funding and a \$374,800 imaging reader purchase for its Center for Predictive Medicine biosafety level three facility on the Shelby Campus with National Institute of Allergy and Infectious Diseases funding.

Pursuant to KRS 45.800(4), Eastern Kentucky University's president notified the committee that he proceeded with the Upgrade Building Management System Controls project submitted last month. Pursuant to KRS 45.800(4) and KRS 45.810(4), the secretary of the Finance and Administration Cabinet notified the committee that she proceeded with the cabinet's transactions submitted last month, except for two new Department of Military Affairs' projects on the agenda today.

Pursuant to KRS 45.812(1); ten school districts, none of which needed an additional tax levy to pay debt service, transmitted upcoming debt issues for new projects. The school districts were Covington Independent (Kenton County), Dayton Independent (Campbell County), Franklin County, Hart County, Kenton County, Knox County, Mercer County, Raceland-Worthington Independent (Greenup County), Russell County, and Trigg County.

Pursuant to KRS 45A.180(2), UofL communicated its intent to use the construction management-at-risk project delivery method for its capital asset preservation project portfolio. Exhibit A of the RFP had a list of potential projects.

Pursuant to KRS 56.813(2)(a)3.b., the Division of Real Properties reported four lump-sum leasehold improvements costing between \$1,000 and \$10,000. Pursuant to KRS 56.823(11)(a), the Division of Real Properties reported three under \$50,000 Transportation Cabinet square footage lease modifications.

Pursuant to KRS 164A.600(2), UK reported the \$3 million design phase of its emergency project; replacement of the newly constructed Grain and Forage Center of Excellence in Princeton which was destroyed by the December 10, 2021, tornado.

UK transmitted its Construct Beam Institute I and II project authorization consolidations. The projects were bid together and UK reflected the consolidation in its April 2022 quarterly capital projects report.

The Council on Postsecondary Education communicated its KRS 164.020(11) approval of the Upgrade Building Management System Controls project.

The School Facilities Construction Commission (SFCC) reported previous school district debt issues with SFCC debt service participation between January and April, twenty-three totaling around \$145 million for new projects and three refunding debt issues totaling around \$24 million.

## **Lease Report from Postsecondary Institutions**

### **University of Kentucky**

Senator McDaniel moved to roll the two UK lease transactions into one roll call vote, Representative Petrie seconded the motion, and the committee approved without objection.

Mr. Hardin submitted a new lease and a lease renewal. The College of Social Work's new lease, [5,921 square feet at] \$19.25 per square foot [for a \$113,979 total annual cost through June 30, 2028, including utilities], will be in a Coldstream facility where UK has other lease agreements. Due to the expansion of its largest tenant [Piramal Pharma Solutions], the current lessor is not renewing the lease at the College's present Coldstream location a half-mile away. The College of Dentistry's lease renewal, roughly 13,500 square feet at \$32.67 per square foot [for a \$439,700 total annual cost through June 30, 2030, including utilities], is for clinical space at Turfland Mall on Harrodsburg Road and the new rental rate is consistent with other medical/dental facilities rented by UK in Fayette County.

Representative Thomas moved to approve the two UK lease transactions, Senator Webb seconded the motion, and the committee approved by unanimous roll call vote.

### **University of Louisville**

Mr. Spoelker submitted a new 67 bed [in eighteen apartment units] master housing lease with Louisville Properties I. The units will be in The Province, an off-campus UofL affiliated apartment property, and used primarily by UofL's football team. The term is five years starting with around a \$510,000 annual payment and three percent annual inflationary increases thereafter.

In response to Senator Daniel, Mr. Spoelker stated that the UofL Athletic Association will use its own funds for the rental payments.

Senator Webb moved to approve UofL's new master housing lease, Representative Thomas seconded the motion, and the committee approved by unanimous roll call vote.

### **Project Report from the Finance and Administration Cabinet**

Representative Petrie moved to roll the six new projects into one roll call vote, Representative Thomas seconded the motion, and the committee approved without objection.

Mr. Cardwell submitted six new projects; four from the Department of Military Affairs', two of which were resubmittals from last month, and two from the Kentucky Department of Fish and Wildlife Resources (KDFWR), and reported three pool allocations.

The first new Department of Military Affairs' project was the federally funded [Military Construction Cooperative Agreement (MCCA)] \$16,120,500 Construct Burlington Field Maintenance Shop. The 25,156 square foot facility, adjacent to the

readiness center and replacing the leased maintenance shop, will provide maintenance services for military vehicles used by the Burlington, Carrolton, and Walton armories.

The second was the \$3.5 million Bowman Field Annex Readiness Center Interior Restoration project, \$3 million in federal funds [MCCA] and \$500,000 from the Department of Military Affairs' 2020-2022 investment income maintenance pool. The interior restoration is a complete interior renovation; with upgrades including latrines, HVAC, lighting, electrical, antiterrorism/force protection windows, flooring, and walls. The readiness center was constructed in 1951 and served as the U.S. Army Reserve Readiness Center until it was replaced by the adjacent new facility. The building has largely laid dormant since 2016 when the acquisition transfer process to the Kentucky Army National Guard began. The Kentucky Army National Guard plans to station a newly assigned 200 soldier divisional artillery headquarters within the renovated facility, which will include Human Resources, Intelligence, Operations, Sustainment, Signal, and Special Staff Sections.

The third was the \$1.2 million Appalachian Challenge Academy (ACA) upgrades project, \$900,000 in federal funds [Youth Challenge Cooperative Agreement] and \$300,000 from Department of Military Affairs' restricted funds for the required twenty-five percent match. The interior renovations to the ACA Facility, formerly a school building, will include men's and women's showers and latrines, HVAC, water heaters, lighting, flooring, and walls.

The final was the \$2 million Boone National Guard Center (BNGC) Rear Access Control Point project, \$1.5 million in federal funds [MCCA] and \$500,000 from Department of Military Affairs' 2020-2022 investment income maintenance pool for the required twenty-five percent match. The modifications will include a security building and changes to lanes, control gates, and fences to better control traffic flow. The current rear access control point is only utilized for emergencies and oversized vehicles. The new access control point will give BNGC a dual entry and exit point for employees and emergency vehicles and will include video monitoring capability, breakroom, restrooms, and offices for security personnel.

The two new KDFWR projects received U.S. Fish & Wildlife Service Pittman-Robertson Wildlife Restoration federal funds.

The first was the \$3.5 million Veteran's Memorial Wildlife Management Area - Public Shooting Range, \$3.15 million in federal funds and \$350,000 from KDFWR restricted funds. The public shooting range, including classroom for conservation/hunter education and four offices, will be in Georgetown. There was a public forum and further community outreach regarding the project.



The second was the \$4.5 million Ballard Wildlife Management Area “Big Pump” project, \$3.375 million in federal funds and \$1.125 million from Ducks Unlimited. The replacement pump will manage water levels on a complex of wetland units for waterfowl hunting. The current pump, with inadequate capacity, has frequent service failures and maintenance/repair requirements, which makes it no longer practical or cost effective to operate.

Representative Freeland and Senator Webb expressed their support for the project. Senator Webb mentioned the [Senate Bill 217] implementation and encouraged the Finance and Administration Cabinet and KDFWR to follow the intent of the legislature, remarked on hunting at Ballard, commented on the importance of federal law compliance for federal funds receipts, referenced taxation on sporting items [ammunition, firearms, and archery equipment] as the Wildlife Restoration fund source, and noted Ducks Unlimited’s presence at one of the Kentucky Sportsmen's Caucus meetings and its outreach.

Representative Petrie moved to approve the six new projects, Representative Thomas seconded the motion, and the committee approved by unanimous roll call vote.

The first pool allocation was for the Finance and Administration Cabinet, Department for Facilities and Support Services, \$2,063,900 Library and Archives HVAC Replacement project, funded from DFSS’s 2020-2022 bond-funded maintenance pool. The project will upgrade, modify, and otherwise modernize the HVAC system and temperature controls in the 150,000 square foot facility that stores and archives historically significant documents.

The second was for the \$1,752,300 Kentucky Community and Technical College System, Land Acquisition, Somerset Community College, funded from KCTCS’s restricted funded 2020-2022 Property Acquisitions Pools. The acquisition was two buildings at 580 and 610 Valley Oak Drive for several SCC programs including heavy equipment operations, welding, customized business, industry training, and electrical technology.

The final was for the \$5,133,000 KDFWR Little Sexton project, funded from the Fees-in-Lieu-of Stream Mitigation Projects Pool. This project, authorized by the U.S. Army Corps of Engineers, will restore and protect over 26,000 linear feet of Little Sexton’s Creek and other headwater tributaries in the Sexton’s Creek watershed in Clay and Jackson Counties and fulfill an obligation of approximately 9,300 EIU advanced stream credits in the Upper Kentucky River Service Area.

#### **Lease Report from the Finance and Administration Cabinet**

Senator Webb moved to roll the three lease submittals into one roll call vote, Representative Thomas seconded the motion, and the committee approved without objection.

Mr. Aubrey submitted a Kentucky Department of Highways (KDOH) lease modification, Cabinet for Health and Family Services lease renewal, and new KDOH lease with modification and reported a KDOH emergency lease with modification.

The KDOH lease modification in Jefferson County will reduce the leased area by 33,545 square feet for a total leased area of 151,938 square feet with a \$341,860.52 annual rental cost through June 30, 2025.

The CHFS lease renewal in Bourbon County is under the same terms and conditions; \$13.20 per square foot with a \$109,230 annual rental cost through June 30, 2024.

The KDOH new lease, \$14,000 per month through June 30, 2025, and lease modification in Whitley County involves 37,239 square feet of warehouse space; 2,355 square feet of office space, and six acres of land. Kentucky Transportation Cabinet (KYTC) will surplus its current maintenance facility [adjacent to Firestone Industrial Products which is conducting the \$51 million, 68,000 square foot expansion of its Williamsburg air springs production facility] to the Whitley County Industrial Development Authority pursuant to a memorandum of agreement between KYTC, the Whitley County Industrial Development Authority, and Firestone. This lease will be needed until the anticipated 2025 completion of the new maintenance and salt storage facility [reauthorized in House Bill 241]. The modification will amortize \$84,600 in improvements through the lease expiration including the installation of washout pit with oil and water separator and antifreeze hydrant as well as the construction of a drainage ditch, retention pond, and salt storage areas. Division of Real Properties received one estimate [from the lessor] for the improvements.

Senator Webb moved to approve the three lease submittals, Representative Thomas seconded the motion, and the committee approved by unanimous roll call vote.

The emergency KDOH lease with modification in Graves County was to house travel trailers [KYTC purchased 200 with House Bill 5 proceeds for the Commonwealth Sheltering Program] for families whose primary residences were majorly damaged, destroyed, or not habitable due to the December 2021 tornadoes. The site has utility hookups for the non-congregate shelters/trailers; therefore the lease was procured through non-competitive negotiation at \$350 per lot per month. The lease is month-to-month, initially for ten lots and modified to add an additional thirty lots.

## **Office of Financial Management**

### **Kentucky Infrastructure Authority (KIA)**

Senator McDaniel moved to roll the Infrastructure Revolving Fund (Fund B) Program loan and Drinking Water State Revolving Fund (Fund F) Program loan into one

roll call vote, Representative Thomas seconded the motion, and the committee approved without objection.

Ms. Williams submitted a Fund B and Fund F loan. The South Woodford Water District requested a \$2.23 million Fund B loan for its \$2.705 million Comprehensive System Rehabilitation project, the rehabilitation of two storage tanks and a pump station as well as the replacement of all water meters. [The district received a \$225,000 Cleaner Water Program grant approved by the committee in March and a \$250,000 American Rescue Plan Act county allocation.] The loan term is twenty years with a two percent interest rate. The city of Cynthiana requested a \$3,370,700 Fund F loan for its \$4.64 million Industrial Park Water Tank and Water Treatment Plant Upgrade project, new 750,000 gallon elevated water storage tank and booster pump station and replacement of failed valves, installation of UV disinfection units on the filter effluent, and various electrical upgrades. [The city received a \$269,300 CWP grant approved by the committee in March and a \$1 million ARPA county allocation.] The loan term is thirty years with a quarter percent interest rate.

In response to Senator McDaniel, Ms. Williams said that all projects with KIA assistance agreements require bid bonds.

Senator McDaniel moved to approve the Fund B and Fund F loans, Senator Webb seconded the motion, and the committee approved by unanimous roll call vote.

### **Cabinet for Economic Development**

Senator McDaniel moved to roll the three Economic Development Fund (EDF) grants into one roll call vote, Representative Petrie seconded the motion, and the committee approved without objection.

Ms. Smith submitted three EDF grants. The first two are for infrastructure improvements [part of the Kentucky Product Development Initiative (KPDI) program which, administered in conjunction with the Kentucky Association for Economic Development and codified in House Bill 745, uses EDF monies for industrial site upgrades. Recipients are required to match funds on a dollar-for-dollar basis.]. The KPDI improvements were identified by an independent site consultant as prospective infrastructure projects with the potential for future investment/location of an economic development project. The Cabinet for Economic Development (CED) disburses KPDI program funds to the local government entity on a reimbursement basis after review and approval of supporting documentation including invoices, proof of payment, matching funds, and progress report. The \$212,500 EDF grant to the Rowan County Fiscal Court on behalf of the Menifee-Morgan-Rowan County Regional Industrial Development Authority is for the construction of a 150,000 square foot pad ready site on Lot 10 of the MMRC Park. The \$300,000 EDF grant to the Mason County Fiscal Court on behalf of the Maysville-Mason County Industrial Development Authority is for renovations at 1151

Morton Lane [former Federal Mogul facility] in Maysville. The industrial development authorities are providing the matching funds. The \$150,000 EDF grant to the city of Williamsburg on behalf of Firestone will be applied towards the \$51 million expansion referenced in the above new KDOH lease with modification. FSIP and its affiliates are manufacturers of air spring and related products for commercial trucks and trailers, cars, SUVs, light trucks, minivans, motorhomes, buses, etc. The grant agreement includes investment, job, and wage requirements; 250 new full-time jobs for employees subject to Kentucky individual income taxes at a \$29 average hourly wage including benefits, measured annually from December 31, 2025, through December 31, 2028. CED did not require collateral because disbursements will occur after each of the annual compliance measurement dates, with the amount based upon the achieved performance metrics.

In response to Representative Petrie, Ms. Smith explained that the independent site consultant/site selection group selected the submitted KPDI projects prior to the passage of House Bill 745, which included annual reporting requirements. She said she would request the site selection group's reports detailing its grant recommendations from the Kentucky Association for Economic Development.

Representative Thomas moved to approve the three EDF grants, Representative Petrie seconded the motion, and the committee approved by unanimous roll call vote.

#### **Office of Financial Management**

Representative Petrie moved to roll the three new debt issues into one roll call vote, Representative Thomas seconded the motion, and the committee approved with no objection.

Mr. Barrow submitted three new debt issues and reported three previous debt issues. The first new debt issue was the Kentucky Housing Corporation (KHC) Conduit Multifamily Housing Revenue Bonds (The Prestonian), Series 2022; \$50 million net proceeds with a \$117.5 million project cost for the acquisition, construction, and equipping of 343 units in Louisville.

The second was the Kentucky Economic Development Authority Revenue Refunding Bonds (Masonic Homes of Kentucky). The debt issue, not to exceed \$75 million, is a refinancing of the [Series 2012 debt issue and five First Midwest Bank commercial loans. The Series 2012 refinanced Series 2009 and Series 2010 debt for construction of the Sam Swope Center on Masonic's main campus in Saint Matthews as well as a \$1.8 million PNC loan for facilities improvements on the Shelbyville campus. The Series 2012 also financed a new entrance to the health care center on the Shelbyville campus and conversion of administrative area to adult day care center on the Saint Matthews campus. The commercial loans were for financing and refinancing facilities improvements on the Saint Matthews, Shelbyville, and Taylor Mill campuses.]

The KHC and KEDFA new debt issues, as conduit debt issues, are applied towards the state's private activity volume cap for the tax-exemption and affect neither the Commonwealth's nor the agencies' financials.

The final new debt issue was the University of Kentucky General Receipts (Forward Delivery) Refunding Bonds, 2024 Series A, a forward refunding [settling the transaction within ninety days of the prior debt's earliest redemption date] of certain 2014 Series A debt. With the increase in interest rates, it is economically feasible to refund only \$21.720 million [of the \$155.435 million eligible to be refunded] of the prior debt. The estimated all-in true interest cost is 4.24 percent with estimated 6.23 percent net present value savings, [or \$1.353 million]. However, interest rates are volatile.

Senator McDaniel stated that tax issues between the City of Taylor Mill and Masonic Homes were ongoing and that the city specifically voted not to exempt Masonic Homes from local ad valorem taxation after the passage of legislation [House Bill 351, 2020 Regular Session].

Representative Petrie moved to vote on the Masonic Homes debt issue separately, Representative Thomas seconded the motion, and the committee approved without objection.

Representative Thomas moved to approve the KHC and UK debt issues, Senator Webb seconded the motion, and committee approved by unanimous roll call vote.

Representative Thomas moved to approve the Masonic Homes debt issue, Senator Webb seconded the motion, and the committee did not approve the debt issue with five nay votes.

The first previous debt issue was the \$85.365 million State Property and Buildings Commission Revenue Bonds, Project No. 126, Series A; general fund appropriation-supported debt to fund \$100 million of projects in various appropriations bills. The all-in true interest cost was just above three percent in the negotiated transaction with Citigroup.

The second was the \$56.875 million Turnpike Authority of Kentucky Economic Development Road Revenue Refunding Bonds (Revitalization Projects), 2022 Series A; a road fund appropriation-supported forward refunding for economic savings which priced in September. The all-in true interest cost was 1.561 percent with just over 25 percent net present value savings, or \$17.787 million. The over 25 percent savings was a record for state appropriation-supported debt [the net present value savings for the non-state appropriation-supported \$185.3 million Kentucky Public Transportation Infrastructure Authority refinancing was above 32 percent].

The final was the \$284.435 million KEDFA Hospital Revenue Refunding Bonds, Series 2022 A-1 and Series 2022 A-2 (Baptist Healthcare System Obligated Group) conduit debt issue.

**School District Debt Issues with School Facilities Construction Commission Debt Service Participation**

Senator Webb moved to roll the two SFCC debt issues with SFCC participation into one roll call vote, Senator McDaniel seconded the motion, and the committee approved without objection.

Mr. Barrow submitted two school district debt issues with SFCC participation to finance new projects. The Jackson Independent (Breathitt County) and Taylor County school districts, neither of which needed an additional tax levy to pay debt service, planned debt issuances totaling \$9.5 million, over 96 percent with locally supported debt service and just under four percent with SFCC debt service participation. The Taylor County Schools was a resubmission as the bids came in higher than anticipated [SFCC guidelines for resubmittal are forty percent increase in debt issuance size].

In response to Representative Freeland, Mr. Barrow stated that SFCC referenced new projects of about \$450 to \$475 per square foot, which are substantially higher, and the Taylor County project was about \$350 per square foot.

Representative Thomas moved to approve the three EDF grants, Representative Freeland seconded the motion, and the committee approved by unanimous roll call vote.

**Next Meeting Date and Adjournment**

Representative Freeland announced Thursday, June 23 as the next meeting date. With there being no further business the meeting adjourned at 2:45 p.m.

# **EXHIBIT 29**



**KENTUCKY INFRASTRUCTURE AUTHORITY**

**Andy Beshear**  
Governor

100 Airport Road  
Frankfort, Kentucky 40601  
(502) 573-0260  
kia.ky.gov

**Sandy Williams**  
Executive Director

April 4, 2023

Mr. Barry Drury  
South Woodford Water District  
117D Crossfield Drive  
Versailles, KY 40383

**KENTUCKY INFRASTRUCTURE AUTHORITY  
FEDERALLY ASSISTED FUND B INFEASTRUCTURE REVOLVING LOAN FUND  
CONDITIONAL COMMITMENT LETTER (B22-003)  
EXTENSION**

Dear Mr. Drury:

The Kentucky Infrastructure Authority ("the Authority") has approved an extension of the Fund B Infrastructure Revolving Fund B22-003 for the SWWD Comprehensive System Rehab 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 April 8, 2023. The new expiration date will be December 8, 2023. If the project does not meet the conditions by the new expiration date, the commitment may be rescinded.

All original terms and conditions from the commitment letter dated April 8, 2022, shall remain in effect.

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 "Milward Dedman".

Milward Dedman  
Deputy Executive Director





Please sign and return a copy of this letter indicating your acceptance of this commitment letter extension and its terms.

\_\_\_\_\_  
Accepted

\_\_\_\_\_  
Date

# **EXHIBIT 30**



**KENTUCKY INFRASTRUCTURE AUTHORITY**

**Andy Beshear**  
Governor

100 Airport Road  
Frankfort, Kentucky 40601  
(502) 573-0260  
kia.ky.gov

**Sandy Williams**  
Executive Director

November 26, 2023

Mr Barry Drury  
South Woodford Water District  
117D Crosfield Drive  
Versailles, KY 40383

**KENTUCKY INFRASTRUCTURE AUTHORITY  
FEDERALLY ASSISTED Fund B WATER REVOLVING LOAN FUND  
CONDITIONAL COMMITMENT LETTER (B22-003)  
EXTENSION**

Dear Mr Drury:

The Kentucky Infrastructure Authority ("the Authority") has approved an extension of the Fund B Water State Revolving Fund B22-003 for the SWWD Comprehensive System Rehab 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 April 8, 2023. The new expiration date will be June 8, 2024. If the project does not meet the conditions by the new expiration date, the commitment may be rescinded.

All original terms and conditions from the commitment letter dated April 8, 2022, shall remain in effect.

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 "Milward Dedman".

Milward Dedman  
Deputy Executive Director



Please sign and return a copy of this letter indicating your acceptance of this commitment letter extension and its terms.

\_\_\_\_\_  
Accepted

\_\_\_\_\_  
Date

# **EXHIBIT 31**

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Title Page

	Name of Respondent	Addr. Line 1	Addr. Line 2	City	State	Zip
Water Districts/Associations	Annual Report of					
Respondent	South Woodford County Water District	117-D Crossfield Drive		Versailles	KY	40383

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Principal Payment and Interest Information

	Amount	Yes/No	PSC Case No.
Amount of Principal Payment During Calendar Year	\$21,300.00		
Is Principal Current?		Y	
Is Interest Current?		Y	
Has all long-term debt been approved by the Public Service Commission?		Y	

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Services Performed by Independent CPA

	Yes/No	A/C/R	Audit Date
Are your financial statements examined by a Certified Public Accountant?			
Enter Y for Yes or N for No	Y		
If yes, which service is performed?			
Enter an X on each appropriate line			
Audit		X	
Compilation			
Review			
Date of Audit			3/31/2023
Please enclose a copy of the accountant's report with annual report.			



30400 South Woodford Water District 01/01/2022 - 12/31/2022

Additional Requested Information

Name	Electronic Info
Name of Utility and Web Address South Woodford County Water District	
Contact Name and Email Address Barry Drury, Chairman	
Matthew Coyle, Manager	
David Hudson, Secretary/Treasurer	

**Note:**

Matthew Coyle was the District's manager during 2022. The current manager is Sean Gillespie with Gatewood Water.

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Additional Information Required

Case Num	Date	Explain

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Major Water Projects

Provide details about each major water project which is planned but has not yet been submitted for approval to the Public Service commission.	
For the limited purpose of this report, a "Major Project" is defined as one which is not in the ordinary course of business, and will increase your current utilityplant by at least 20 percent.	
Brief Project Description: (improvement, replacement, building construction, expansion. If expansion, provide the estimated number of new customers):	South Woodford Water District Comprehensive System Rehabilitation Project (Project #:WX21239038) - Includes KY 33 Glass Lined Tank Rehabilitation, Mortonsville Elevated Tank Repair, KY 33 Pump Station Replacement, and AMR Meter Changeout (system wide)
Projected Costs and Funding Sources/Amounts:	\$2,230,000 loan from the Infrastructure Revolving Fund (Fund B - State Revolving Loan Program)
Approval Status: (Application for financial assistance filed, but not approved; or application approved, but have not advertised for construction bids)	Approved by the KIA Board
Location: (community, area or nearby roads)	See project description above

30400 South Woodford Water District 01/01/2022 - 12/31/2022

History-Legal Name (Ref Page: 4)

1. Exact name of utility making this report.

(Use the words "The", "Company" or "Incorporated" only when part of the corporate name.)

South Woodford County Water District

30400 South Woodford Water District 01/01/2022 - 12/31/2022

History-Location (Ref Page: 4)

	Name	Address	City	State	Zip	Phone
Give the location, including street and number, and TELEPHONE NUMBER of the principal office in KY.						
principal office in KY	South Woodford County Water District	117-D Crossfield Drive	Versailles	KY	40383	(859) 873-1308
Give name, title, address and TELEPHONE NUMBER of the officer						
to whom correspondence concerning this report should be addressed.						
	David Hudson	117-D Crossfield Drive	Versailles	KY	40383	(859) 873-1308
Location where books are located	South Woodford County Water District	117-D Crossfield Drive	Versailles	KY	40383	
Name of the Headquartered County	Woodford County					

30400 South Woodford Water District 01/01/2022 - 12/31/2022

History-Date Organized (Ref Page: 4)

Date of Organization	Date
1/1/1968	

**30400 South Woodford Water District 01/01/2022 - 12/31/2022**

**History-Laws of Organization (Ref Page: 4)**

List

If a consolidated or merger company, name all contingent and all merged companies. Give reference to charters or general laws governing each, and all amendments of same

Date and Authority for each consolidation and each merger.

30400 South Woodford Water District 01/01/2022 - 12/31/2022

History-Departments (Ref Page: 4)

List

State whether respondent is a water district or association  
Name all operating departments other than water

Water District  
None



**Woodford**

**30400 South Woodford Water District 01/01/2022 - 12/31/2022**

**History - Counties (Ref Page: 5)**

30400 South Woodford Water District 01/01/2022 - 12/31/2022

History - Number of Employees (Ref Page: 5)

Count
Number of Full-time employees
Number of Part-time employees
2

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Contacts (Ref Page: 6)

	Title	Last Name	First Name	Bus. Addr.	Salary	Term Expires	County of Residence
Person to send Icorrespondence:	Secretary/Treasurer	Hudson	David	117-D Crossfield Drive, Versailles KY, 40383			
Person who prepared this report	Auditor	RFH, PLLC		300 West Vine Street, Suite 800, Lexington, KY 40507			
Managers	Manager	Coyle	Matthew	117-D Crossfield Drive, Versailles KY, 40383	\$46,200.00		

**Note:**  
 Matthew Coyle was manager during 2022. Sean Gillespie with Gatewood Water was hired as the new manager in 2023.

**30400 South Woodford Water District 01/01/2022 - 12/31/2022**

**Commissioners (Water Districts Only)**

Item Type either Yes or No

Have visited the Water Commissioner site using the Yes  
[link](#) provided below.

Attest Commissioners listed below are correct for the Yes  
 report period and current commissioner details are up  
 to date.

Title	First Name	Last Name	Appointment	TermExpires	County Of Residence	Salary
Treasurer	Matthew	Coyle	3/1/2021	2/8/2022	Woodford	3600.00
Chairman	Barry	Drury	9/28/2021	9/30/2025	Woodford	3600.00
Secretary	David	Hudson	10/12/2021	8/31/2022	Woodford	3600.00
Secretary	David	Hudson	8/31/2022	8/31/2026	Woodford	3600.00
Treasurer	Bobby	Lippert	2/8/2022	3/31/2025	Woodford	3600.00
Secretary	Ricky	Poor	8/19/2018	8/31/2022	Woodford	3600.00

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Balance Sheet - Assets and Other Debits (Ref Page: 7)

	Previous Year	Current Year
<b>UTILITY PLANT</b>		
Utility Plant (101-106)	\$6,014,239.00	\$6,159,978.00
Less: Accumulated Depreciation and Amortization (108-110)	\$3,151,253.00	\$3,233,537.00
Net Plant	\$2,862,986.00	\$2,926,441.00
Utility Plant Acquisition Adjustments (Net) (114-115)		
Other Utility Plant Adjustments (116)		
Total Net Utility Plant	\$2,862,986.00	\$2,926,441.00
<b>OTHER PROPERTY AND INVESTMENTS</b>		
Nonutility Property (121)		
Less: Accumulated Depreciation and Amortization (122)		
Net Nonutility Property		
Investment in Associated Companies (123)		
Utility and Other Investments (124-125)		
Sinking Funds (126)	\$27,795.00	\$72,973.00
Other Special Funds (127)	\$62,747.00	\$62,753.00
Total Other Property and Investments	\$90,542.00	\$135,726.00
<b>CURRENT AND ACCRUED ASSETS</b>		
Cash (131)	\$31,090.00	\$21,496.00
Special Deposits (132)		
Other Special Deposits (133)		
Working Funds (134)		
Temporary Cash Investments (135)		
Accounts and Notes Receivable, Less Accumulated Provision for Uncollectible Accounts (141-144)	\$64,052.00	\$71,728.00
Accounts Receivable from Associated Companies (145)		
Notes Receivable from Associated Companies (146)		
Materials and Supplies (151-153)		
Stores Expense (161)		
Prepayments (162)		\$3,381.00
Accrued Interest and Dividends Receivable (171)		
Rents Receivable (172)		\$5,923.00
Accrued Utility Revenues (173)		

30400 South Woodford Water District 01/01/2022 - 12/31/2022  
 Balance Sheet - Assets and Other Debits (Ref Page: 7)

	Previous Year	Current Year
Misc. Current and Accrued Assets (174)		\$109,032.00
Total Current and Accrued Assets	\$95,142.00	\$211,560.00
DEFERRED DEBITS		
Unamortized Debt Discount and Expense (181)		
Extraordinary Property Losses (182)		
Preliminary Survey and Investigation Charges (183)		
Clearing Accounts (184)		
Temporary Facilities (185)		
Misc. Deferred Debits (186)		\$22,314.00
Research and Development Expenditure (187)		
Total Deferred Debits		\$22,314.00
TOTAL ASSETS AND OTHER DEBITS	\$3,048,670.00	\$3,296,041.00

**30400 South Woodford Water District 01/01/2022 - 12/31/2022  
Balance Sheet - Equity Capital and Liabilities (Ref Page: 9)**

	Previous Year	Current Year
<b>EQUITY CAPITAL</b>		
Appropriated Retained Earnings (214)	\$90,542.00	\$135,726.00
Retained Earnings From Income before contributions (215.1)	(\$1,222,893.00)	(\$1,294,796.00)
Donated Capital (215.2)	\$3,417,046.00	\$3,550,428.00
Total Equity Capital	\$2,284,695.00	\$2,391,358.00
<b>LONG-TERM DEBT</b>		
Bonds (221)	\$637,100.00	\$615,800.00
Reaquired Bonds (222)		
Advances from Associated Companies (223)		
Other Long-Term Debt (224)		
Total Long Term Debt	\$637,100.00	\$615,800.00
<b>CURRENT AND ACCRUED LIABILITIES</b>		
Accounts Payable (231)	\$59,416.00	\$79,686.00
Notes Payable (232)		
Accounts Payable to Associated Co. (233)		
Notes Payable to Associated Co (234)		
Customer Deposits (235)	\$57,293.00	\$58,987.00
Accrued Taxes (236)	\$5,492.00	\$0.00
Accrued Interest (237)	\$4,674.00	\$12,941.00
Matured Long-Term Debt (239)		
Matured Interest (240)		
Tax Collections Payable (241)		
Misc. Current and Accrued Liabilities (242)		\$109,032.00
Total Current and Accrued Liabilities	\$126,875.00	\$260,646.00
<b>DEFERRED CREDITS</b>		
Unamortized Premium on Debt (251)		
Advances for Construction (252)		
Other Deferred Credits (253)		\$28,237.00
Total Deferred Credits		\$28,237.00
<b>OPERATING RESERVES</b>		
Accumulated Provision For:		
Property Insurance (261)		

**30400 South Woodford Water District 01/01/2022 - 12/31/2022**  
**Balance Sheet - Equity Capital and Liabilities (Ref Page: 9)**

	Previous Year	Current Year
Injuries and Damages (262)		
Pensions and Benefits (263)		
Miscellaneous Operating Reserves (265)		
<b>Total Operating Reserves</b>		
<b>Total Equity Capital and Liabilities</b>	\$3,048,670.00	\$3,296,041.00



30400 South Woodford Water District 01/01/2022 - 12/31/2022

Comparative Operating Statement (Ref Page: 11)

	Previous Year	Current Year
<b>UTILITY OPERATING INCOME</b>		
Operating Revenues (400)	\$889,867.00	\$923,839.00
Operating Expenses (401)	\$839,829.00	\$954,736.00
Depreciation Expenses (403)	\$101,435.00	\$105,526.00
Amortization of Utility Plant Acquisition Adjustment (406)		
Amortization Expense (407)		
Taxes Other Than Income (408,10-408,13)	\$5,664.00	\$4,598.00
Utility Operating Expenses	\$946,928.00	\$1,064,860.00
Utility Operating Income	(\$57,061.00)	(\$141,021.00)
Income From Utility Plant Leased to Others (413)		
Gains (Losses) from Disposition of Utility Property (414)		
Total Utility Operating Income	(\$57,061.00)	(\$141,021.00)
<b>OTHER INCOME AND DEDUCTIONS</b>		
Revenues From Merchandising, Jobbing and contract work (415)		
Costs and Expenses of Merchandising, Jobbing and Contract Work (416)		
Interest and Dividend Income (419)	\$17.00	\$1,760.00
Allowance for funds Used During Constructions (420)		
Nonutility Income (421)		\$140,968.00
Miscellaneous Nonutility Expenses (426)		
Total Other Income and Deductions	\$17.00	\$142,728.00
<b>TAXES APPLICABLE TO OTHER INCOME</b>		
Taxes Other Than Income (408,20)		
Total Taxes Applic. to Other Income		
<b>INTEREST EXPENSE</b>		
Interest Expense (427)	\$31,713.00	\$28,426.00
Amortization of Debt Discount and Exp. (428)		
Amortization of Premium on Debt (429)		
Total Interest Expense	\$31,713.00	\$28,426.00
<b>EXTRAORDINARY ITEMS</b>		
Extraordinary Income (433)		
Extraordinary Deductions (434)		

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Comparative Operating Statement (Ref Page: 11)

	Previous Year	Current Year
Total Extraordinary Items		
NET INCOME BEFORE CONTRIBUTIONS	(\$88,757.00)	(\$26,719.00)

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Statement of Retained Earnings (Ref Page: 12)

Description	Total
Appropriated Retained earnings (214)	
(state balance and purpose of each appropriated amount at year end):	
Depreciation Reserve	\$62,753.00
Bond & Interest Reserve	\$72,973.00
<b>Total Appropriated Retained Earnings</b>	<b>\$135,726.00</b>
Retained Earnings From Income Before Contributions (215.1)	
Balance beginning of year	(\$1,222,893.00)
Balance transferred from Net Income Before Contributions (435)	(\$26,719.00)
Changes to account:	
Appropriations of Retained Earnings (436)	(\$45,184.00)
Adjustments to Retained Earnings (439)	
(requires Commission approval prior to use):	
Credits	
Debits	
Balance End of Year	(\$1,294,796.00)

30400 South Woodford Water District 01/01/2022 - 12/31/2022  
 Statement of Retained Earnings (cont. 215.2) (Ref Page: 12)

Description	Tapping Fees	Grants	Other	Total
Donated Capital (215.2)				
Balance Beginning of the Year	\$1,164,742.00	\$2,252,304.00	\$0.00	\$3,417,046.00
Credits				
Proceeds from capital contributions (432)	\$24,350.00	\$109,032.00	\$0.00	\$133,382.00
Other Credits (explain)				
Debits (explain - requires Commission Approval)				
Balance End of Year	\$1,189,092.00	\$2,361,336.00	\$0.00	\$3,550,428.00

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Net Utility Plant (Accts. 101-106) (Ref Page: 13)

	Total
Utility Plant in Service (101)	\$6,159,258.00
Utility Plant Leased to Others (102)	
Property Held for Future Use (103)	
Utility Plant Purchased of Sold (104)	
Construction Work in Progress (105)	\$720.00
Completed Construction Not Classified (106)	
Total Utility Plant	\$6,159,978.00

**30400 South Woodford Water District 01/01/2022 - 12/31/2022  
Accumulated Depreciation ( Acct. 108) (Ref Page: 13)**

Description	Total
Balance First of Year	\$3,151,253.00
Credit during year	
Accruals Charged to Account 108.1	
Accruals Charged to Account 108.2	\$105,526.00
Accruals Charged to Account 108.3	
Accruals Charged to Other Accounts (specify) (specify)	
Salvage Value Recovered on Plant Retired	
Other Credits (specify)	
<b>Total Credits</b>	<b>\$105,526.00</b>
Debits during year:	
Book Cost of Plant Retired	\$23,242.00
Cost of Removal	
Other Debits (specify)	
<b>Total Debits</b>	<b>\$23,242.00</b>
Balance at End of Year	\$3,233,537.00

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Water Utility Plant Accounts (Ref Page: 14)

	Prev Year (c)	Additions (d)	Retirement (e)	Current Yr (f)	Intngble. Plant (g)	Supply & Pump.	Water Treatmt.	Trans. and Distr.	General Plant
Organization (301)									
Franchises (302)									
Land and Land Rights (303)	\$30,699.00	\$0.00	\$0.00	\$30,699.00	\$0.00	\$0.00	\$0.00	\$30,699.00	\$0.00
Structures and Improvements (304)	\$4,386.00	\$0.00	\$0.00	\$4,386.00	\$0.00	\$0.00	\$0.00	\$4,386.00	\$0.00
Collecting and Impounding Reservoirs (305)									
Lakes, Rivers and Other Intakes (306)									
Wells and Springs (307)									
Infiltration Galleries and Tunnels (308)									
Supply Mains (309)									
Power Generation Equipment (310)									
Pumping Equipment (311)	\$10,761.00	\$0.00	\$0.00	\$10,761.00	\$0.00	\$10,761.00	\$0.00	\$0.00	\$0.00
Water Treatment Equipment (320)									
Distribution Reservoirs and Standpipes (330)	\$707,262.00	\$120,169.00	\$0.00	\$827,431.00	\$0.00	\$0.00	\$0.00	\$827,431.00	\$0.00
Transmission and Distribution Mains (331)	\$4,231,164.00	\$0.00	\$0.00	\$4,231,164.00	\$0.00	\$0.00	\$0.00	\$4,231,164.00	\$0.00
Services (333)	\$66,588.00	\$0.00	\$0.00	\$66,588.00	\$0.00	\$0.00	\$0.00	\$66,588.00	\$0.00
Meters and Meter Installations (334)	\$684,132.00	\$34,814.00	\$0.00	\$718,946.00	\$0.00	\$0.00	\$0.00	\$718,946.00	\$0.00
Hydrants (335)	\$108,125.00	\$6,708.00	\$0.00	\$114,833.00	\$0.00	\$0.00	\$0.00	\$114,833.00	\$0.00
Backflow Prevention Devices (336)									

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Water Utility Plant Accounts (Ref Page: 14)

	Prev Year (c)	Additions (d)	Retirement (e)	Current Yr (f)	Intngble. Plant (g)	Supply & Pump.	Water Treatmnt.	Trans. and Distr.	General Plant
Other Plant and Misc. Equipment (339)	\$139,321.00	\$0.00	\$0.00	\$139,321.00	\$0.00	\$0.00	\$0.00	\$139,321.00	\$0.00
Office Furniture and Equip. (340)	\$21,942.00	\$6,570.00	\$14,422.00	\$14,090.00	\$0.00	\$0.00	\$0.00	\$14,090.00	\$0.00
Transportation Equipment (341)	\$8,820.00	\$0.00	\$8,820.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Stores Equipment (342)									
Tools, Shop and Garage Equip (343)									
Laboratory Equipment (344)									
Power Operated Equipment (345)									
Communication Equipment (346)									
Miscellaneous Equipment (347)									
Other Tangible Plant (348)	\$1,039.00	\$0.00	\$0.00	\$1,039.00	\$0.00	\$0.00	\$0.00	\$1,039.00	\$0.00
Total Water Plant	\$6,014,239.00	\$168,261.00	\$23,242.00	\$6,159,258.00	\$0.00	\$10,761.00	\$0.00	\$6,148,497.00	\$0.00



30400 South Woodford Water District 01/01/2022 - 12/31/2022

Analysis of Accumulated Depreciation and Amortization by Primary Acct (Ref Page: 15)

	Balance Beg Yr(c)	Cr-Chg Dep Exp(d)	Other Credits (e)	Charges-Plant Ret(f)	Other Charges (g)	Balance End Yr (h)
Organization (301)						
Franchises (302)						
Land and Land Rights (303)						
Structures and Improvements (304)	\$4,386.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4,386.00
Collecting and Impounding Reservoirs (305)						
Lake, River and Other Intakes (306)						
Wells and Springs (307)						
Infiltration Galleries and Tunnels (308)						
Supply Mains (309)						
Power Generating Equipment (310)						
Pumping Equipment (311)	\$11,359.00	\$0.00	\$0.00	\$0.00	\$0.00	\$11,359.00
Water Treatment Equipment (320)						
Distributions Reservoirs and Standpipes (330)	\$584,600.00	\$12,001.00	\$0.00	\$0.00	\$0.00	\$596,601.00
Transmission and Distribution Mains (331)	\$2,001,156.00	\$78,352.00	\$0.00	\$0.00	\$0.00	\$2,079,508.00
Services (333)	\$66,588.00	\$0.00	\$0.00	\$0.00	\$0.00	\$66,588.00
Meters and Meter Installations (334)	\$285,937.00	\$11,046.00	\$0.00	\$0.00	\$0.00	\$296,983.00
Hydrants (335)	\$33,333.00	\$2,076.00	\$0.00	\$0.00	\$0.00	\$35,409.00
Backflow Prevention Devices (336)						
Other Plant and Miscellaneous Equipment (339)	\$139,321.00	\$0.00	\$0.00	\$0.00	\$0.00	\$139,321.00
Office Furniture and Equip. (340)	\$14,550.00	\$2,051.00	\$0.00	\$14,422.00	\$0.00	\$2,179.00
Transportation Equipment (341)	\$8,820.00	\$0.00	\$0.00	\$8,820.00	\$0.00	\$0.00
Stores Equipment (342)						

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Analysis of Accumulated Depreciation and Amortization by Primary Acct (Ref Page: 15)

	Balance Beg Yr(c)	Cr-Chg Dep Expl(d)	Other Credits (e)	Charges-Plant Ret(f)	Other Charges (g)	Balance End Yr (h)
Tools, Shop and Garage Equip (343)	\$164.00	\$0.00	\$0.00	\$0.00	\$0.00	\$164.00
Laboratory Equipment (344)						
Power Operated Equipment (345)						
Communication Equipment (346)						
Miscellaneous Equipment (347)						
Other Tangible Plant (348)	\$1,039.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,039.00
Totals	\$3,151,253.00	\$105,526.00	\$0.00	\$23,242.00	\$0.00	\$3,233,537.00

**30400 South Woodford Water District 01/01/2022 - 12/31/2022  
Accumulated Amortization ( Acct. 110) (Ref Page: 16)**

Description	Total
Balance First of Year	
Credit during year	
Accruals Charged to Account 110.1	
Accruals Charged to Account 110.2	
Other Credits	
(specify)	
Total Credits	
Debits during year:	
Book Cost of Plant Retired	
Other Debits	
(specify)	
Total Debits	
Balance end of Year	

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Utility Plant Acquisition Adjustments (Accts. 114-115) (Ref Page: 16)

Description	Total
Acquisition Adjustments (114) (specify)	
Total Plant Acquisition Adjustments	
Accumulated Amortization (115) (specify)	
Total Accumulated Amortization	
Net Acquisition Adjustments	

**30400 South Woodford Water District 01/01/2022 - 12/31/2022**  
**Accounts and Notes Receivable - Net (Accts 141-144) (Ref Page: 18)**

Description	Total
Accounts and Notes Receivable	
Customer Accounts Receivable (141)	\$74,720.00
Other Accounts Receivable (142)	
Total Other Accounts Receivable	
Notes Receivable (144)	
Total Notes Receivable	
Total Accounts and Notes Receivable	\$74,720.00
Accumulated Provision for Uncollectible Accounts (143)	
Balance First of Year	
Add:	
Provision for uncollectibles for current year	\$2,992.00
Collections of account previously written off	
Other	
(specify)	
Total Additions	\$2,992.00
Deduct accounts written off during year:	
Other	
(specify)	
Total Deductions	
Balance end of Year	\$2,992.00
Total Accounts and Notes Receivable - Net	\$71,728.00

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Investments and Special Funds (Ref Page: 17)

Description (a)	Face or Par Value (b)	Year End Book Cost
Investment in Associated Companies (123)		
Total Investment in Associated Companies		
Utility Investments (124)		
Total Utility Investments		
Other Investments (125)		
Total Other Investments		
Sinking Funds (126)		
Bond & Interest Sinking Fund	\$0.00	\$72,973.00
Total Sinking Funds	\$0.00	\$72,973.00
Other Special Funds (127)		
Depreciation Reserve	\$0.00	\$62,753.00
Total Other Special Funds	\$0.00	\$62,753.00

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Materials and Supplies (151-153) (Ref Page: 19)

	Total
Plant Materials and Supplies (151)	
Merchandise (152)	
Other Materials and Supplies (153)	
Total Materials and Supplies	

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Prepayments (Acct. 162) (Ref Page: 19)

Description	Total
Prepaid Insurance	\$3,381.00
Prepaid Rents	
Prepaid Interest	
Prepaid Taxes	
Other Prepayments	
(Specify)	
Total Prepayments	\$3,381.00



30400 South Woodford Water District 01/01/2022 - 12/31/2022

Miscellaneous Deferred Debits (Acct. 186) (Ref Page: 20)

	Total
Miscellaneous Deferred Debits (186)	
Deferred Rate Case Expense (186.1)	\$0.00
Other Deferred Debits (186.2)	\$22,314.00
Regulatory Assets (186.3)	
Total Miscellaneous Deferred Debits	\$22,314.00

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Unamortized Debt Discount and Expense and Premium on Debt (Accts 181 and 251) (Ref Page: 20)

Description	Amt Written Off during Year	Year End Balance
Unamortized Debt Discount and Expense (181)		
Total Unamortized Debt Discount and Expense		
Unamortized Premium on Debt (251)		
Total Unamortized Premium on Debt		

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Extraordinary Property Losses (Acct. 182) (Ref Page: 21)

Description	Total
Extraordinary Property Losses (182) (Specify)	
Total Extraordinary Property Losses	

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Advances for Construction (Acct. 252) (Ref Page: 21)

	Total
Balance First of Year	
Add credits during year	
Deduct charges during year	
Balance end of year	

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Long Term Debt (Ref Page: 22)

Description of Obligation (a)	Issue Date (b)	Mature Date (c)	Interest Expense for Year Rate (d)	Interest Expense for Year Amount(e)	Principal per Balance Sheet Date (f)
Total					

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Bonds - Account 221 (Ref Page: 23)

	Par Value of Actual Issue (1)	Cash Realized on Actual Issue (2)	Par Val of Amt. Held by or for Respondent (3)	Actually Outstanding at Close of Year (4)	Interest During Year Accrued (5)	Interest During Year Actually Paid (6)
	\$328,000.00	\$328,000.00	\$0.00	\$104,000.00	\$5,720.00	\$2,860.00
	\$118,000.00	\$118,000.00	\$0.00	\$22,500.00	\$1,209.00	\$605.00
	\$293,000.00	\$293,000.00	\$0.00	\$197,500.00	\$8,619.00	\$4,298.00
	\$53,000.00	\$53,000.00	\$0.00	\$34,800.00	\$1,518.00	\$757.00
	\$490,000.00	\$490,000.00	\$0.00	\$257,000.00	\$11,360.00	\$11,639.00
<b>Total</b>	<b>\$1,282,000.00</b>	<b>\$1,282,000.00</b>	<b>\$0.00</b>	<b>\$615,800.00</b>	<b>\$28,426.00</b>	<b>\$20,159.00</b>

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Schedule of Bond Maturities (Ref Page: 23)

Bond Numbers (7)	Maturity Date (8)	Interest Rate (9)	Principal Amt (10)	Amounts Paid (11)	Remaining Bonds Outstanding (12)
1/1/22		0.0000	\$21,300.00	\$21,300.00	\$0.00
1/1/23		0.0000	\$54,400.00	\$0.00	\$54,400.00
1/1/24		0.0000	\$57,900.00	\$0.00	\$57,900.00
1/1/25		0.0000	\$60,900.00	\$0.00	\$60,900.00
1/1/26		0.0000	\$56,000.00	\$0.00	\$56,000.00
1/1/27		0.0000	\$59,100.00	\$0.00	\$59,100.00
1/1/32		0.0000	\$201,700.00	\$0.00	\$201,700.00
1/1/37		0.0000	\$76,800.00	\$0.00	\$76,800.00
1/1/40		0.0000	\$49,000.00	\$0.00	\$49,000.00
<b>Total</b>			<b>\$637,100.00</b>	<b>\$21,300.00</b>	<b>\$615,800.00</b>

(The total of Column 12 must agree with the total of col 4)

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Notes Payable (Accts 232 and 234) (Ref Page: 24)

Principal Amt Per Bal Sheet	Int. Payment	Int. Rate	Date of Maturity	Nominal Date of Issue	Description
					Account 232 - Notes Payable
					Total Account 232
					Account 234 - Notes Payable to Associated Companies
					Total Account 234



30400 South Woodford Water District 01/01/2022 - 12/31/2022

Accounts Payable to Associated Companies (Acct. 233) (Ref Page: 24)

Description	Total
Show Payable to Each Associated Company Separately (Specify)	
Total	

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Taxes Accrued (Acct. 236) (Ref Page: 25)

	Total
Balance First of Year	\$5,492.00
Accruals Charged:	
Utility regulatory assessment fees (408.10)	\$1,329.00
Property taxes (408.11)	
Payroll taxes (employer's portion) (408.12)	\$3,269.00
Other taxes and licenses (408.13)	
Taxes other than income, other income and deductions (408.20)	
<b>Total taxes accrued</b>	<b>\$4,598.00</b>
Taxes paid during year:	
Utility regulatory assessment fees (408.10)	\$1,329.00
Property taxes (408.11)	
Payroll taxes (employer's portion) (408.12)	\$8,761.00
Other taxes and licenses (408.13)	
Taxes other than income, other income and deductions (408.20)	
<b>Total Taxes Paid</b>	<b>\$10,090.00</b>
Balance end of year	\$0.00

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Accrued Interest (Account 237) (Ref Page: 25)

	Description of Debt (a)	Balance Beg of Year (b)	Interest Accrued(c)	Interest Paid (d)	Balance End of Year (e)
Long Term Debt:					
Notes Payable:		\$4,674.00	\$28,426.00	\$20,159.00	\$12,941.00
Customer Deposits:					
Other					
Total Acct. No 237		\$4,674.00	\$28,426.00	\$20,159.00	\$12,941.00

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Miscellaneous Current and Accrued Liabilities (Acct. 242) (Ref Page: 26)

Description	Balance End Year
Deferred revenue	\$109,032.00
Total Miscellaneous Current and Accrued Liabilities	\$109,032.00

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Regulatory Commission Expense( Acct 666 and 667) (Ref Page: 26)

Description of Case (Docket No.) (a)	Total Incurred During Year (b)	Amt Transferred to Acct 186.1 (c)	Expensed During Year (d)	Acct	Expensed During Year Amount (e)
Total	\$0.00	\$0.00	\$0.00		\$0.00

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Water Operating Revenue (Ref Page: 27)

	Beginning Year Customers	Year End Customers	Amount
<b>Operating Revenues</b>			
Unmetered Water Revenue (460)			
Metered Water Revenue (461)	1,701	1,729	\$905,919.00
Sales to Residential Customers (461.1)			
Sales to Commercial Customers (461.2)			
Sales to Industrial Customers (461.3)			
Sales to Public Authorities (461.4)			
Sales to Multiple Family Dwellings (461.5)			
Sales through Bulk Loading Stations (461.6)			
<b>Total Metered Sales</b>	<b>1,701</b>	<b>1,729</b>	<b>\$905,919.00</b>
Fire Protection Revenue (462)			
Public Fire Protection (462.1)			
Private Fire Protection (462.2)			
<b>Total Fire Protection Revenue</b>			
Other Sales to Public Authorities (464)			
Sales to Irrigation Customers (465)			
Sales for Resale (466)			
Interdepartmental Sales (467)			
<b>Total Sales of Water</b>	<b>1,701</b>	<b>1,729</b>	<b>\$905,919.00</b>
<b>Other Water Revenues</b>			
Guaranteed Revenues (469)			
Forfeited Discounts (470)			
Miscellaneous Service Revenues (471)			
Rents from Water Property (472)			
Interdepartments Rents (473)			
Other Water Revenues (474)			\$17,920.00
<b>Total Other Water Revenues</b>			<b>\$17,920.00</b>
<b>Total Water Operating Revenues</b>			<b>\$923,839.00</b>

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Water Utility Expense Accounts (Ref Page: 28)

	Current Year (c)	Supply and Exp- Op. (d)	Supply and Exp- Maint. (e)	Water Treatment. Exp-Op. (f)	Water Treatment Exp-Maint. (g)	Trans and Dist. Exp- Op (h)	Trans and Dist. Exp- Maint. (i)	Customer Accts Exp. (j)	Admin and Gen Exp.
Salaries and Wages-Employees (601)	\$41,630.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$41,630.00
Salaries and Wages-Officers, Directors and Majority Stockholders (603)	\$9,900.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$9,900.00
Employee Pensions and Benefits (604)	\$1,392.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,392.00
Purchased Water (610)	\$518,529.00	\$518,529.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Purchased Power (615)	\$33,370.00	\$33,370.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fuel for Power Production (616)									
Chemicals (618)									
Materials and Supplies (620)	\$64,364.00	\$0.00	\$0.00	\$0.00	\$0.00	\$57,804.00	\$0.00	\$0.00	\$6,560.00
Contractual Services - Eng. (631)									
Contractual Services - Acct. (632)	\$10,300.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$10,300.00
Contractual Services - Legal (633)	\$3,570.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3,570.00
Contractual Services - Management Fees (634)	\$46,200.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$46,200.00	\$0.00
Contractual Services - Water Testing (635)	\$3,650.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3,650.00	\$0.00	\$0.00	\$0.00
Contractual Services - Other (636)	\$49,615.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$49,615.00	\$0.00
Rental of Bld./Real Property (641)	\$15,600.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$15,600.00

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Water Utility Expense Accounts (Ref Page: 28)

	Current Year (c)	Supply and Exp- Op. (d)	Supply and Exp- Maint. (e)	Water Treatmt. Exp-Op. (f)	Water Treatmt Exp-Maint. (g)	Trans and Dist. Exp- Op (h)	Trans and Dist. Exp- Maint. (i)	Customer Accts Exp. (j)	Admin and Gen Exp.
Rental of Equipment (642)									
Transportation Expenses (650)									
Insurance - Vehicle (656)									
Insurance - General Liability (657)	\$11,756.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$11,756.00
Insurance - Worker's Compensation (658)									
Insurance - Other (659)									
Advertising Expenses (660)									
Regulatory Commission Exp.									
- Amortization of Rate Case (666)									
-Other (667)	\$116,393.00	\$0.00	\$0.00	\$0.00	\$0.00	\$116,393.00	\$0.00	\$0.00	\$0.00
Water Resource Conservation Expense (668)									
Bad Debt (670)									
Miscellaneous Expenses (675)	\$28,467.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28,467.00	\$0.00	\$0.00	\$0.00
Total	\$954,736.00	\$551,899.00	\$0.00	\$0.00	\$0.00	\$206,314.00	\$0.00	\$95,815.00	\$100,708.00



30400 South Woodford Water District 01/01/2022 - 12/31/2022

Pumping and Water Statistics - part one (Ref Page: 29)

	Water Purchased For Resale (Omit 000 s) (b)	Water Pumped from Wells (Omit 000 s) (c)	Total Water Pumped and Purchased (Omit 000 s) (d)	Water Sold To Customers (Omit 000 s) (e)
January	15,098	0	15,098	13,878
February	16,564	0	16,564	8,494
March	14,668	0	14,668	9,630
April	15,339	0	15,339	9,363
May	15,155	0	15,155	10,890
June	18,183	0	18,183	12,333
July	23,277	0	23,277	16,765
August	18,162	0	18,162	13,077
September	21,717	0	21,717	12,251
October	17,718	0	17,718	12,797
November	19,340	0	19,340	11,373
December	18,727	0	18,727	9,523
Total for the year	213,948	0	213,948	140,374

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Pumping and Water Statistics - part two (Ref Page: 29)

	Gallons	Date
Maximum Gallons pumped by all methods in any one day (Omit 1000's)	888	12/28/2022
Minimum Gallons pumped by all methods in any one day (Omit 000's)	283	3/22/2022

**30400 South Woodford Water District 01/01/2022 - 12/31/2022  
Pumping and Water Statistics - part three (Ref Page: 29)**

List

If water is purchased indicate the following:

Vendor	City of Versailles
Point of Delivery	City Limits

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Pumping and Water Statistics - part four (Ref Page: 29)

Entity Receiving Water	Maximum Daily	Maximum Monthly
If water is sold to other water utilities for redistribution, identify all entities with whom the utility has a water sales contract and the maximum quantity the utility is under contract to provide daily and monthly. If unlimited then list "unlimited" otherwise list in thousands of gallons.		

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Sales For Resale (466) (Ref Page: 30)

Company	Gallons (Omit 000's)	Avg. Rate Per 1000 Gallons (Cents)	Amount
Total			

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Water Statistics (Ref Page: 30)

Description	Gallons (Omit 000's)	Percent
1. Water Produced, Purchased and Distributed		
2. Water Produced		
3. Water Purchased	213,948	
4. Total Produced and Purchased	213,948	
6. Water Sales:		
7. Residential	140,374	
8. Commercial		
9. Industrial		
10. Bulk Loading Stations		
11. Wholesale		
12. Public Authorities		
13. Other Sales (explain)		
14. Total Water Sales	140,374	
16. Other Water Used		
17. Utility/water treatment plant		
18. Wastewater plant		
19. System flushing	5,247	
20. Fire department		
21. Other Usage (explain)		
22. Total Other Water Used	5,247	
24. Water Loss		
25. Tank Overflows	600	
26. Line Breaks	7,677	
27. Line Leaks	60,050	
28. Excavation Damages		
29. Theft		
30. Other Loss (Explain)	0	
31. Total Water Loss	68,327	
Note: Line 14 + Line 22 + Line 31 must equal Line 4		
Water Loss Percentage		
Line 31 divided by Line 4		31.9363

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Plant Statistics (Ref Page: 31)

Give the following information

Number of fire hydrants, by size	28-4" and 81-2"
Number of private fire hydrants, by size	None
If produced whether water supply is river, impounded streams, well, springs, artificial lake, or collector well	Purchased by the City of Versailles
If produced whether supply is by gravity, pumping or a combination	Gravity, supplemented by pumps
Type, capacity, and elevation of reservoirs at overflow and ground level	Pumps
Miles of main by size and kind	8" asbestos - approx. 1.1 miles; 6" asbestos - approx. 21.5 miles; 4" asbestos - approx. 3.1 miles; 3" PVC - approx. 4.3 miles; 4" PVC - approx. 22,630 ft.; 2" PVC - approx. 1,900 ft.; 3" PVC - approx. 5 miles (Pinchard Pike); 4" PVC - approx. 5.6 miles (Glover Bottom); 3" PVC - approx. 4 miles (Hehner Pike); 4" PVC - approx. 7 miles (Harve James Ext.); 4" PVC - approx. 19 miles (Phase III); 3" PVC - approx. 1 mile (Carpenter Pike Ext.); 6" PVC - approx. 3,000 ft. (Delaney's Farm); 6" PVC - approx. 1,200 ft.; 4" PVC - approx. 36,385 ft.; 4" PVC - approx. 5 miles (Bluegrass Road); 4" PVC - approx. 1 mile (Baker Lane); 4" PVC - approx. 1.5 miles (Shawnee Lane); 4" PVC - approx. 1.5 miles (McGee Lane); 6" PVC - approx. .8 miles (Hicks Drive); 3" PVC - approx. 2 miles (Tyronne Pike); 3" PVC - approx. 3 miles (Brush Run); 4" PVC - approx. .7 miles (Boone Dale Ext.); 4" PVC - approx. .3 miles (Pauls Mill); 4" PVC - approx. .1 mile (Lakewood Ext.); 4" PVC - approx. .19 miles (Oregon Road)
Types of filters: gravity or pressure, number of units and total rated in capacity in gal. per min.	None
Type of disinfectant, number of units and capacity in pounds per 24 hours	None
Station Equipment: List each pump, giving type and capacity, HP of driving unit and character of driving unit(steam/electric/int. combustion) also whether pump is high/ low duty	Constant duty electric- when used, underground boosting station.
Quantity of fuel used: coal in lbs., gas in cu.ft., oil in gals., and electric in KWH	Pumps are at standby
Give description and total cost of any sizable additions or retirements to plant and service outside the normal system of growth for the period covered by this report	None
Capacity of clear well	None
Peak month, in gallons of water sold	July, 16,764,500
Peak day, in gallons of water sold	12/28-888,000

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Plant Statistics - Part B (Ref Page: 31)

Type
Choose one to indicate the type of Water Supply
Purchase



30400 South Woodford Water District 01/01/2022 - 12/31/2022

Plant Statistics - Part C (Ref Page: 31)

Type
Choose one to indicate the type of Water Supply Method
Combination

CheckList

Item	Value 1	Value 2	Agree	Explain
------	---------	---------	-------	---------

NOTE: Any mention of page numbers or Line items refers to the annual report published and distributed for the 2002 report period.

Identifications pages (ref 4-6) have been completed.

Balance Sheet - Assets and Other Debts (ref. pg 7)

Utility Plant (Accts 101-106) agrees with Sched:	6159978.00	6159978.00	OK	
Net Utility Plants Accts 101-106 (ref pg 13) Line: Total Utility Plant				

Accts 108-110 Acc. Depreciation and Amort. agrees with Sched: Analysis of Acc. Dep. and Amort. (ref pg 15) Line: Total 301-348 Col h	3233537.00	3233537.00	OK	
--	------------	------------	----	--

Accts 114-115 Utility Plant Acquisition Adjustments agrees with Sched: Utility Plant Acquisition Adjustments (ref pg 16) Line: Net Acquisition Adjustments (114-115)	0	0	OK	
--	---	---	----	--

Accts 123 Investment in Assoc. Companies agrees with Sched: Investments and Spec. Funds (ref pg 17) Line: Total Investment in Associated Companies	0	0	OK	
--	---	---	----	--

Accts 124-125 Utility Investments agrees with Sched: Investments and Spec. Funds (ref pg 17) Sum of Lines: 124 Total Utility Investments and 125 Total Other Investments	0	0	OK	
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Accts 126 Sinking Funds agrees with Sched: Investments and Spec. Funds (ref pg 17) Line: 126 Total Sinking Funds	72973.00	72973.00	OK	
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Accts 127 Other Special Funds agrees with Sched: Investments and Spec. Funds (ref pg 17) Line: Total 127 Other Special Funds	62753.00	62753.00	OK	
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Accts 141-144 Accounts and Notes Receivable agrees with Sched: Accts and Notes Receivable (ref pg 18) Line: Net Balance 141-144	71728.00	71728.00	OK	
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Accts 151-153 Material and Supplies agrees with Sched: Material and Supplies (ref pg 19) Line: Total 151-153	0	0	OK	
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CheckList

Item	Value 1	Value 2	Agree	Explain
Accts 162 Prepayments agrees with Sched: Prepayments (ref pg 19) Line: Total 162	3381.00	3381.00	OK	
Accts 181 Unamortized Debt Discount and Expense agrees with Sched: Unamortized Debt Discount and Exp. (ref pg 20) Line: Total 181	0	0	OK	
Accts 182 Extraordinary Prop. losses agrees with Sched: Extraordinary Property Losses (ref pg 21) Line: Total 182	0	0	OK	
Accts 186 Misc. Deferred Debits agrees with Sched: Misc. Deferred Debits (ref pg 20) Line: Total 186	22314.00	22314.00	OK	
Balance Sheet - Equity Capitol and Liabilities (ref. pg 9)				
Accts 214 Appropriated Retained Earnings agrees with Sched: Statement of Retained Earnings (ref pg 12) Line: Total Appropriated Retained Earnings 214	135726.00	135726.00	OK	
Accts 215.1 Retained Earnings from Income before Contributions with Sched: Statement of Retained Earnings (ref pg 12) Line: Balance End of Year 215.1	-1294796.00	-1294796.00	OK	
Accts 215.2 Donated Capital with Sched: Statement of Retained Earnings (cont. 215.2) (ref pg 12) Line: Balance End of Year 215.2	3550428.00	3550428.00	OK	
Accts 221 Bonds agrees with Sched: Account 221 (ref pg 23) Line: Total Outstanding Bonds Col 4	615800.00	615800.00	OK	
Accts 221 Bonds agrees with Sched: Schedule of Bond Maturities (ref pg 23) Line: Total Remaining Bonds (Col 12)	615800.00	615800.00	OK	
Accts 224 Other Long Term Debt agrees with Sched: Long Term Debt (ref pg 22) Line: Total Acct 224 col f	0	0	OK	
Accts 232 Notes Payable agrees with Sched: Notes Payable (Accts 232 and 234) (ref pg 24) Line: Total Acct 232	0	0	OK	

30400 South Woodford Water District 01/01/2022 - 12/31/2022

CheckList

Item	Value 1	Value 2	Agree	Explain
Accts 233 Accounts Payable to Associated Co. agrees with Sched: Accounts Payable to Assoc. Companies (Accts 233) (ref pg 24) Line: Total Acct 233	0	0	OK	
Accts 234 Notes Payable agrees with Sched: Notes Payable (Accts 232 and 234) (ref pg 24) Line: Total Acct 234	0	0	OK	
Accts 236 Taxes Accrued Balance First of Year agrees with Sched: Taxes Accrued (Accts 236) (ref pg 25) Line: Beginning Balance	5492.00	5492.00	OK	
Accts 236 Taxes Accrued agrees with Sched: Taxes Accrued (Accts 236) (ref pg 25) Line: Ending Balance	0.0000	0.0000	OK	
Accts 237 Accrued Interest Balance from Prev Year agrees with Sched: Accrued Interest (Accts 237) (ref pg 25) Line: Total 237 Balance Beginning of Year -Col b	4674.00	4674.00	OK	
Accts 237 Accrued Interest agrees with Sched: Accrued Interest (Accts 237) (ref pg 25) Line: Total 237 Balance End of Year -Col e	12941.00	12941.00	OK	
Accts 242 Misc. Current and Accrued Liabilities agrees with Sched: Misc current and Accrued Liabilities (Accts 242) (ref pg 26) Line: Total Miscellaneous and Current Accrued Liabilities	109032.00	109032.00	OK	
Accts 251 Unamortized Premium on Debt agrees with Sched: Unamorted Debt Discount and Expense and Premium on Debt (Accts 181 - 251) (ref pg 20) Line: Total 251	0	0	OK	
Accts 252 Advances for Contruction agrees with Sched: Advances for Contruction (Accts 252) (ref pg 21) Line: Total 252	0	0	OK	
Total Equity Capital and Liabilities agrees with Balance Sheet - Assets and Other Debits: Total Assets and Other Debits	3296041.00	3296041.00	OK	
Comparative Operating Statement (ref pg 10)				

30400 South Woodford Water District 01/01/2022 - 12/31/2022

CheckList

Item	Value 1	Value 2	Agree	Explain
Accts 400 Operating Revenues agrees with Sched: Water Operating Revenue (Accts 400) (ref pg 27) Line: Total Water Operating Revenues - Col e	923839.00	923839.00	OK	
Accts 401 Operating Expenses agrees with Sched: Water Utility Expense Accounts (ref pg 28) Line: Total Accts (601-675) - Col c	954736.00	954736.00	OK	
Accts 408.1 Taxes Other than Income agrees with Schedule Taxes Accrued (Acct 236) (ref pg 26) Sum of Accts 408.10 - 408.13	4598.00	4598.00	OK	
Sum of Accts 408.1 and 408.2 agrees with Sched: Taxes Accrued (Acct 236) (ref pg 25) Line: Total taxes Accrued	4598.00	4598.00	OK	
Accts 427 Interest Expense agrees with Sched: Accrued Interest (Acct 237) (ref pg 25) Line: Total Acct No 237 Col c - Interest Accrued	28426.00	28426.00	OK	
Net Income agrees with Sched: Retained Earnings (Acct 237) (ref pg 12) Line: Balance Transferred from Income (Acct 435)	-26719.00	-26719.00	OK	
Miscellaneous				
Schedule Net Utility Plant Accts 101 - 106 (ref pg 13) Utility Plant (101) agrees with Sched: Water Utility Plant Accounts (ref pg 14) Line: Total Water Plant Col f - Current Year	6159258.00	6159258.00	OK	
The analysis of water utility plant accounts Col c through k has been completed (Ref pg 14)				
The analysis of accumulated depreciation and amortization by primary account has been completed. (Ref pg 14)				
Sched: Misc. Deferred Debits (Acct 186) Deferred Rate Case (Acct 186.1) agrees with Sched: Amort. of Rate Case (Acct 665 and 667) (ref pg 26) Line: Total Col c - Amt Transferred to 186.1	0.0000	0.0000	OK	
Schedule of Long Term Debt has been completed (ref pg 22)				

30400 South Woodford Water District 01/01/2022 - 12/31/2022

CheckList

Item	Value 1	Value 2	Agree	Explain
Schedule of Bond Maturities has been completed (ref pg 23)				
Taxes collected (example: school tax, sales tax, franchise tax ) have been excluded from Operating Revenue ( Ref pg 29)				
The analysis of water operating revenue Cols c,d and e have been completed. (Ref pg 28)				
The analysis of water utility expense accounts Cols c through k have been completed. (Ref pg 28)				
Schedule of Pumping and Purchased Water Statistics has been completed ( Ref pg 29)				
Sched Pumping and Water Statistics - part one (ref pg 29) Line Total for the year - Col Total (d) agrees with Sched Water Statistics (ref pg 30) Line 4. Total Produced and Purchased Col Gallons	213948	213948	OK	
Sched Pumping and Water Statistics - part one (ref pg 29) Line Total for the year - Col Water Sold(e) agrees with Sched Water Statistics (ref pg 30) Line Total Water Sales Col Gallons	140374	140374	OK	
Sched Sales for Resale (ref pg 30) 466 Total Gal agrees with Sched Water Statistics (ref pg 30) Total Water Sales	0	0	OK	
Schedule Water Statistics (ref pg 30) Lines 14,22 and 31 must equal Line 4	213948	213948	OK	
Have visited the Water Commissioner site. (Water Districts ONLY)			Yes	
Attest Commissioners listed on the Commissioner Schedule are correct for the report period and current commissioner details are up to date. (Water Districts ONLY)			Yes	
Oath Page Has been Completed				

30400 South Woodford Water District 01/01/2022 - 12/31/2022

Upload supporting documents

<b>Document</b>	<b>Description</b>	<b>Supports</b>
<a href="#">SD 30400 2022 1.pdf</a>	2022 Audit Report	Audit Report

Utility ID: 30400

OATH

Commonwealth of Kentucky )  
County of Woodford ) ss:

Barry Drury makes oath and says  
(Name of Officer)

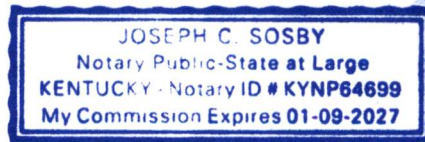
that he/she is Chairman of  
(Official title of officer)  
South Woodford Water District  
(Exact legal title or name of respondent)

that it is his/her duty to have supervision over the books of account of the respondent and to control the manner in which such books are kept; that he/she knows that such books have, during the period covered by the foregoing report, been kept in good faith in accordance with the accounting and other orders of the Public Service Commission of Kentucky, effective during the said period; that he/she has carefully examined the said report and to have the best of his/her knowledge and belief the entries contained in the said report have, so far as they relate to matters of account, been accurately taken from the said books of account and are in exact accordance therewith; that he/she believes that all other statements of fact contained in the said report are true; and that the said report is a correct and complete statement of the business and affairs of the above-named respondent during the period of time from and including

January 1, 2022 , to and including December 31, 2022

Barry Drury  
(Signature of Officer)

subscribed and sworn to before me, a Notary Public , in and for  
the State and County named in the above this March 31, 2023



(Apply Seal Here)

My Commission expires \_\_\_\_\_

Joseph C. Sosby  
(Signature of officer authorized to administer oath)



# **EXHIBIT 32**

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](http://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/Long Term Borrowing

#### Section A - Borrower Information

Agency Name	South Woodford County Water District		
Governing Body	South Woodford County Water District Board of Commissioners		
Street Address	117-D Crossfield Drive		
P.O. Box #	City	Versailles	
County	Woodford	Zip	40383
Authorized Official	David Hudson, Chairman, Board of Commissioners		

#### Section B - Terms of Financial Obligation

Please provide all relevant information. Fields in **bold** are mandatory.

<b>Principle Amount:</b>	2,230,000	<b>Date of Issue:</b>	04/01/2024
<b>Maturity Date(s):</b>	01/01/2045	<b>Payment Schedule:</b>	(must attach schedule)
<b>Term:</b>	20 Years	<b>Number of Renewal Periods:</b>	0
<b>Interest Rate(s):</b>	2.00	<b>Type of Interest (fixed or variable):</b>	Fixed
<b>Retirement Method:</b>	Annual Principal Payment & Semi-Annual Interest Payments		
Lender's Name:	Kentucky Infrastructure Authority		
Lender's Address:	100 Airport Road, Frankfort, Kentucky 40601		
Right of Termination:	None		
Termination Penalties:	None		
Prepayment Provisions:	District may prepay without penalty		
Trustee or Paying Agent:			
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):

Loan will finance the replacement of Water District's meters and an aging pump station at the end of its useful service life. Proposed meter replacement is expected to reduce water loss. Proposed pump station replacement will reduce the risk of significant distribution system failure and alleviate low pressure problems. See attached KIA Staff Analysis.

Pledge of Taxes/Description:

None

Pledge of Revenue/Description:

Revenues from water operations pledged as security; rates will produce 1.2X debt service plus O&M expenses.

Pledge of Project Revenues (Attach documentation which substantiates the revenue projections):

See attached KIA Staff Analysis. See also KPSC Order of 1/17/2023 in Case No. 2022-00035.

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.

Loan was secured from Kentucky Infrastructure Authority through the Kentucky State Revolving Fund. KIA is an entity of the Commonwealth of Kentucky. Its rates are below market rates.

**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.

**Section D - Lease Information/Documentation**

Describe the real or personal property to be acquired or constructed:

Not applicable. No lease will be executed.

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.

Page 3

**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. No bonds will be issued.

**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)David Hudson	Date: 01/31/2023
Title: Chairman	Signature: <i>David W. Hudson</i>

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

<b>EXECUTIVE SUMMARY</b>		Reviewer	John Brady	
<b>KENTUCKY INFRASTRUCTURE AUTHORITY</b>		Date	April 7, 2022	
<b>FUND B, INFRASTRUCTURE</b>		KIA Loan Number	B22-002	
<b>REVOLVING LOAN FUND</b>		WRIS Number	WX21239038	
<b>BORROWER</b>		SOUTH WOODFORD WATER DISTRICT WOODFORD COUNTY		
<b>BRIEF DESCRIPTION</b>				
The South Woodford Water District (SWWD) is requesting a Fund B loan in the amount of \$2,230,000 for the Comprehensive System Rehabilitation project. This project consists of repairs to several components within the water system necessary to maintain adequate service to customers. These include the rehabilitation of two storage tanks and a pump station and the replacement of all water meters. Radio read meters and leak detection meters will be installed to improve reading accuracy and help control the SWWD's issue with excess water loss.				
<b>PROJECT FINANCING</b>		<b>PROJECT BUDGET</b>		
Fund B Loan	\$2,230,000	Administrative Expenses	RD Fee %	Actual %
CWP Grant	225,000	Legal Expenses		\$25,000
ARPA	250,000	Land, Easements		10,000
		Planning		5,000
		Eng - Design / Const	7.5%	6.0%
		Eng - Insp	4.4%	2.7%
		Construction		145,000
		Contingency		65,000
		Other		2,375,000
<b>TOTAL</b>	<b>\$2,705,000</b>	<b>TOTAL</b>		<b>\$2,705,000</b>
<b>REPAYMENT</b>	Rate	2.00%	Est. Annual Payment \$140,292	
	Term	20 Years	1st Payment	6 Mo. after first draw
<b>PROFESSIONAL SERVICES</b>	Engineer	Haworth, Meyer & Boleyn, Inc.		
	Bond Counsel	Rubin & Hays		
<b>PROJECT SCHEDULE</b>	Bid Opening	Sep-22		
	Construction Start	Jan-23		
	Construction Stop	Jul-23		
<b>DEBT PER CUSTOMER</b>	Existing	\$438		
	Proposed	\$1,704		
<b>OTHER DEBT</b>	See Attached			
<b>RESIDENTIAL RATES</b>	Current	Users	Avg. Bill	
		1,638	\$30.46 (for 4,000 gallons)	
<b>REGIONAL COORDINATION</b>	This project is consistent with regional planning recommendations.			
<b>CASHFLOW</b>	Cash Flow Before Debt Service	Debt Service	Cash Flow After Debt Service	Coverage Ratio
Audited 2018	137,485	117,972	19,513	1.2
Audited 2019	97,679	117,000	(19,321)	0.8
Audited 2020	66,537	106,065	(39,528)	0.6
Projected 2021	53,790	82,095	(28,305)	0.7
Projected 2022	133,972	82,745	51,227	1.6
Projected 2023	211,173	152,684	58,489	1.4
Projected 2024	251,661	223,684	27,977	1.1
Projected 2025	244,744	223,851	20,893	1.1

SOUTH WOODFORD WATER DISTRICT  
FINANCIAL SUMMARY (DECEMBER YEAR END)

	Audited 2018	Audited 2019	Audited 2020	Projected 2021	Projected 2022	Projected 2023	Projected 2024	Projected 2025
<b>Balance Sheet</b>								
<b>Assets</b>								
Current Assets	197,420	193,402	123,517	117,850	135,395	154,593	164,189	168,367
Other Assets	3,182,353	3,095,802	3,080,888	2,957,898	2,898,534	5,487,954	5,347,964	5,202,307
<b>Total</b>	<b>3,379,773</b>	<b>3,289,204</b>	<b>3,204,405</b>	<b>3,075,748</b>	<b>3,033,929</b>	<b>5,642,547</b>	<b>5,512,153</b>	<b>5,370,674</b>
<b>Liabilities &amp; Equity</b>								
Current Liabilities	193,468	213,639	185,603	189,826	193,326	309,526	313,826	318,126
Long Term Liabilities	767,367	717,000	667,900	615,800	561,400	2,622,000	2,449,600	2,274,200
<b>Total Liabilities</b>	<b>960,835</b>	<b>930,639</b>	<b>853,503</b>	<b>805,626</b>	<b>754,726</b>	<b>2,931,526</b>	<b>2,763,426</b>	<b>2,592,326</b>
<b>Net Assets</b>	<b>2,418,938</b>	<b>2,358,565</b>	<b>2,350,902</b>	<b>2,270,122</b>	<b>2,279,203</b>	<b>2,711,021</b>	<b>2,748,727</b>	<b>2,778,348</b>
<b>Cash Flow</b>								
Revenues	836,853	883,687	856,470	856,470	943,170	1,032,618	1,079,887	1,079,887
Operating Expenses	716,439	794,969	812,484	818,874	825,392	837,640	844,421	851,338
Other Income	17,071	8,961	22,551	16,194	16,194	16,195	16,195	16,195
<b>Cash Flow Before Debt Service</b>	<b>137,485</b>	<b>97,679</b>	<b>66,537</b>	<b>53,790</b>	<b>133,972</b>	<b>211,173</b>	<b>251,661</b>	<b>244,744</b>
<b>Debt Service</b>								
Existing Debt Service	117,972	117,000	106,065	82,095	82,745	82,538	83,392	83,559
Proposed KIA Loan	0	0	0	0	0	70,146	140,292	140,292
<b>Total Debt Service</b>	<b>117,972</b>	<b>117,000</b>	<b>106,065</b>	<b>82,095</b>	<b>82,745</b>	<b>152,684</b>	<b>223,684</b>	<b>223,851</b>
<b>Cash Flow After Debt Service</b>	<b>19,513</b>	<b>(19,321)</b>	<b>(39,528)</b>	<b>(28,305)</b>	<b>51,227</b>	<b>58,489</b>	<b>27,977</b>	<b>20,893</b>
<b>Ratios</b>								
Current Ratio	1.0	0.9	0.7	0.6	0.7	0.5	0.5	0.5
Debt to Equity	0.4	0.4	0.4	0.4	0.3	1.1	1.0	0.9
Days Sales in Accounts Receivable	28.2	30.4	30.7	30.7	30.7	30.7	30.7	30.7
Months Operating Expenses in Unrestricted Cash	1.6	1.2	0.8	0.7	0.8	1.0	1.0	1.1
Debt Coverage Ratio	1.2	0.8	0.6	0.7	1.6	1.4	1.1	1.1

Reviewer: John Brady  
 Date: April 7, 2022  
 Loan Number: B22-002

**KENTUCKY INFRASTRUCTURE AUTHORITY  
 INFRASTRUCTURE REVOLVING LOAN FUND (FUND B)  
 SOUTH WOODFORD WATER DISTRICT, WOODFORD COUNTY  
 PROJECT REVIEW  
 WX21239038**

**I. PROJECT DESCRIPTION**

The South Woodford Water District (SWWD) is requesting a Fund B loan in the amount of \$2,230,000 for the Comprehensive System Rehabilitation project. This project consists of repairs to several components within the water system necessary to maintain adequate service to customers.

Both the Mortonsville and KY33 water tanks are in dire need of repair. The Mortonsville tank is currently out of service and needs to be sanitized and painted before it can be put back into service. Rehabilitation of the KY33 pump station will include replacing the backup pump and piping. All meters will be replaced to greatly enhance the accuracy of readings. Current meters are not working properly and some are not working at all. Leak detection meters will also be installed throughout the system to help control the SWWD's issue with excess water loss.

The SWWD currently serves over 1,600 residential and commercial customers.

**II. PROJECT BUDGET**

	<u>Total</u>
Administrative Expenses	\$ 25,000
Legal Expenses	10,000
Land, Easements	5,000
Planning	15,000
Engineering Fees - Design	115,000
Engineering Fees - Construction	30,000
Engineering Fees - Inspection	65,000
Construction	2,375,000
Contingency	30,000
Other	35,000
<b>Total</b>	<b>\$ 2,705,000</b>

**III. PROJECT FUNDING**

	Amount	%
Fund B Loan	\$ 2,230,000	82%
CWP Grant	225,000	8%
ARPA	250,000	9%
<b>Total</b>	<b>\$ 2,705,000</b>	<b>100%</b>

**IV. KIA DEBT SERVICE**

Construction Loan	\$ 2,230,000
Less: Principal Forgiveness	0
Amortized Loan Amount	\$ 2,230,000
Interest Rate	2.00%
Loan Term (Years)	20
Estimated Annual Debt Service	\$ 135,832
Administrative Fee (0.20%)	4,460
<b>Total Estimated Annual Debt Service</b>	<b>\$ 140,292</b>

**V. PROJECT SCHEDULE**

Bid Opening	September 2022
Construction Start	January 2023
Construction Stop	July 2023

**VI. RATE STRUCTURE**

**A. Customers**

Customers	Current
Residential	1,617
Commercial	21
<b>Total</b>	<b>1,638</b>

**B. Rates**

<b>Water</b>	Proposed	Current	Prior
Date of Last Rate Increase	07/01/22	08/01/18	07/01/13
Minimum (2,000 gallons)	\$22.82	\$20.48	\$20.20
Over 2,000 gallons (per 1,000)	5.56	4.99	4.85
Cost for 4,000 gallons	\$33.94	\$30.46	\$29.90
Increase %	11.4%	1.9%	
Affordability Index (Rate/MHI)	0.5%	0.5%	



## **VII. DEMOGRAPHICS**

Based on current Census data from the American Community Survey 5-Year Estimate 2016-2020, the Utility's service area population was 3,906 with a Median Household Income (MHI) of \$81,030. The median household income for the Commonwealth is \$50,589. The project will qualify for a 2.00% interest rate.

## **VIII. FINANCIAL ANALYSIS**

Financial information was obtained from the audited financial statements for the years ended January 1, 2018 through December 31, 2020. Percentage references in the History section below are based on whole dollar amounts and not the rounded amounts presented.

### **HISTORY**

Water revenues increased 2.3% from \$836,853 in 2018 to \$856,470 in 2020. Operating expenses increased 13.4% from \$716,439 to \$812,484 during the same period due to costs associated with excess water loss. The debt coverage ratio was 1.2, 0.8, and 0.6 in 2018, 2019, and 2020.

The balance sheet reflects a current ratio of 0.7, a debt to equity ratio of 0.4, 30.7 days of sales in accounts receivable, and 0.8 months of operating expenses in unrestricted cash.

### **PROJECTIONS**

Projections are based on the following assumptions:

- 1) Water revenues will increase 5.7% in both 2022 and 2023 due to a proposed rate increase with an anticipated effective date of July 1, 2022.
- 2) Water loss reduction surcharge of \$3.87 per customer per month will generate an additional \$77,000 each year for four years.
- 3) Revenues will increase approximately \$50,000 in 2024 to maintain the 1.1 debt coverage ratio requirement.
- 4) SWWD receives Public Service Commission (PSC) approval documentation.
- 5) Operating expenses will increase 2% annually due to inflation.
- 6) Debt service coverage is 1.4 in 2023 when principal and interest repayments begin.

Based on the pro forma assumptions, the utility shows adequate cash flow to repay the KIA Fund B loan.

The SWWD is regulated by the PSC and will need to apply to the PSC, pursuant to KRS 278.300, for debt authorization for the \$2,230,000 loan. The SWWD must receive a Certificate of Public Convenience and Necessity, pursuant to KRS 278.020.

**REPLACEMENT RESERVE**

The replacement reserve will be 5% (\$112,000 total) of the final amount borrowed to be funded annually (\$5,600 yearly) each December 1 for 20 years and maintained for the life of the loan.

**IX. DEBT OBLIGATIONS**

	<u>Outstanding</u>	<u>Maturity</u>
1996A Revenue Bonds	\$ 137,000	2026
1996B Revenue Bonds	35,700	2026
1999A Revenue Bonds	211,000	2039
1999B Revenue Bonds	37,300	2039
KRWFC Note	<u>296,000</u>	2037
<b>Total</b>	<b>\$ 717,000</b>	

**X. CONTACTS**

<b>Legal Applicant</b>	
Entity Name	South Woodford Water District
Authorized Official	Barry Drury (Chairman)
County	Woodford
Email	barry.drury@me.com
Phone	(859) 618-9722
Address	117 D Crossfield Dr Versailles, KY 40383

<b>Applicant Contact</b>	
Name	Matthew Coyle
Organization	South Woodford Water District
Email	office@southwoodfordwater.com
Phone	(859) 873-1308
Address	117 D Crossfield Dr Versailles, KY 40383

**Project Administrator**

Name	Karyn Leverenz
Organization	Bluegrass ADD
Email	kleverenz@bgadd.org
Phone	(859) 269-8021
Address	699 Perimeter Dr Lexington, KY 40517

**Consulting Engineer**

PE Name	Jeff Reynolds
Firm Name	Haworth, Meyer & Boleyn, Inc.
Email	jdreynolds@hmbpe.com
Phone	(502) 695-9800
Address	3 Hmb Circle Frankfort, KY 40601

**XI. RECOMMENDATIONS**

KIA staff recommends approval of the loan with the standard conditions and the following special condition:

By May 31, 2022, the SWWD will need a resolution from the SWWD Board, demonstrating their intentions to increase revenues as necessary and authorized by the PSC to meet the loan requirements over the life of the loan. KIA Staff review currently indicates that revenues will need to increase by an estimated \$50,000 annually by January 1, 2024, which equates to an approximate rate increase of 5%, to meet expenses and maintain the 1.1 debt coverage ratio in 2024.

# **EXHIBIT 33**

**Detailed Estimate of Acquired Property Classified According  
To The Uniform System of Accounts For  
Class A/B Water Districts and Associations**

<b>Account No.</b>	<b>Account Description</b>	<b>Estimate</b>
303	Land and Land Rights	\$ 11,370
314	Structures and Improvements	\$ 852,526
334	Meters and Meter Installations	\$ 772,494
346	Communication Equipment	\$ 118,179
	<b>TOTAL</b>	<b>\$ 1,754,569</b>