

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF)	
MCCREARY COUNTY WATER DISTRICT)	
FOR DECLARATORY ORDER, OR IN THE)	
ALTERNATIVE, FOR A CERTIFICATE OF)	CASE NO. 2022-00284
PUBLIC CONVENIENCE AND NECESSITY)	
FOR CERTAIN ECONOMIC DEVELOPMENT)	
WASTEWATER IMPROVEMENTS)	

APPLICATION

Pursuant to KRS 278.020, and 807 KAR 5:001, Section 19, McCreary County Water District (“McCreary District”) applies to the Public Service Commission (“Commission”) for an order declaring that the facilities constructed pursuant to “Contract No. 37 - Fibrotex Sanitary Sewer Pump Station and Force Main” (“Contract 37”) are an ordinary extension in the usual course of business and do not require a certificate of public convenience and necessity, or in the alternative, for an order granting a certificate of public convenience and necessity for those facilities.

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

A. Background

1. The full name and post office address of McCreary District is: McCreary County Water District, Post Office Box 488, Whitley City, Kentucky 42653. Its e-mail address is mcwd@highland.net.

¹ To facilitate the Commission’s initial review of this Application, McCreary District has attached to this Application a “Filings Requirements List” that consists of four pages, lists each statutory and regulatory requirement for an application for a declaratory order and for a certificate of public convenience and necessity, identifies the exhibit or paragraph that satisfies the requirement, and contains a hyperlink to that exhibit or paragraph.

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

3. McCreary District is a water district created under the provisions of KRS Chapter 74.

4. McCreary County Court created McCreary District pursuant to an order entered November 16, 1962. A copy of this Order and a subsequent Order establishing McCreary District's current boundaries is attached as **Exhibit 1** of this Application.

5. McCreary District's Board of Commissioners, which manages McCreary District's business and affairs pursuant to KRS 74.070(2), has authorized the filing of this application. A copy of its Resolution authorizing this Application is attached at **Exhibit 2** of this Application.

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

Stephen Whitaker
Superintendent
Post Office Box 488
Whitley City, KY 42653
(270) 298-7704
stepwhitaker@gmail.com

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

7. McCreary District owns and operates facilities that are used in the collection, transmission, or treatment of sewage for the public, for compensation, and provide sewer service

² On August 19, 2022 pursuant to 807 KAR 5:001, Section 8, McCreary District notified the Commission of its election of the use of electronic filing procedures for this proceeding.

to the public in McCreary County, Kentucky. Pursuant to KRS 278.015 and KRS 278.040, these facilities are subject to the Commission's jurisdiction and regulation.

8. As of December 31, 2021, McCreary District provided sewer service to approximately 1,171 customers, including 887 residential customers, 162 commercial customers, five industrial customers, and 117 institutional or non-classified customers, including the United States Penitentiary McCreary, which is located at Pine Knot, Kentucky and which has a total inmate population of 1,546.³ McCreary District has a serviceable population of 2,243 households and approximately 6,255 persons.⁴

9. McCreary District began its sewer operations in 1984 with the acquisition of a 40,000 gallons per day package sewage treatment facility in Pine Knot, Kentucky.⁵ In 1994 it constructed additional facilities to expand its total daily treatment capacity to 140,000 gallons. In 2001, McCreary District obtained the Commission's approval to construct additional sewage treatment facilities that increased its daily treatment capacity to 900,000 gallons⁶ and completed construction of these facilities in 2004.⁷

10. McCreary District currently operates a sewage treatment facility that has a total daily treatment capacity of 900,000 gallons and is located outside Sterns, Kentucky. The facility

³ *Annual Report of McCreary County Water District to the Public Service Commission of the Commonwealth of Kentucky for Sewer Operations for the Calendar Year Ended December 31, 2021* ("2021 Annual Sewer Report") at Ref Page 12; Federal Bureau of Prisons, <https://www.bop.gov/locations/institutions/mcr/> (last visited Aug. 4, 2022).

⁴ Kentucky Water Resource Information System ("WRIS"), Waste Water System Information on McCreary County Water District, <https://wris.ky.gov/portal/WwSysData/KY0097837> (last visited Aug. 23, 2022).

⁵ *Application of the McCreary County Water District for Authority to Acquire and Operate the East Pine Knot Estates Waste Water Collection and Treatment Plant Now Operated by D.H. Campbell and Joan Campbell, A Partnership, in Pine Knot, McCreary County, Kentucky*, Case No. 9334 (Ky. PSC Aug. 28, 1985). For a detailed description of the plant's operations, see *The Application of D.H. Campbell and Joan Campbell, Partnership, for an Order Establishing Initial Rates for a Waste Water Collection and Treatment System to Serve the Residents of East Pine Knot Estates Subdivision in McCreary County, Kentucky*, Case No. 8888 (Ky. PSC Jan. 13, 1984).

⁶ *The Application of McCreary County Water District for A Certificate of Public Convenience and Necessity to Construct, Finance and Increase Rates Pursuant to KRS 278.023*, Case No. 2001-00338 (Ky. PSC Nov 15, 2001)

⁷ *Report of McCreary County Water District (Sewer Operations) to the Kentucky Public Service Commission for the Year ending December 31, 2004* at Ref Page 11.

uses an extended aeration treatment process and consists of two 450,000-gallon oxidation ditch concrete structures, two clarifiers and two digesters. McCreary District operates approximately 278,000 linear feet (“LF”) of sewer main, 70 manholes and 15 major lift stations.⁸

11. As of December 31, 2021, McCreary District’s sewer operations had a net utility plant of \$12,006,948.⁹

B. Economic Development Wastewater Improvements Project

12. In October 2018, the U.S. Department of the Army awarded Fibrotex USA a 10-year, \$480 million contract to supply Ultra-Lightweight Camouflage Net Systems (ULCANS).¹⁰ ULCANS is a modular camouflage system used to conceal military equipment, facilities, troops, and other assets in a wide variety of environments. To meet its contractual commitment, Fibrotex USA in partnership with Outdoor Venture Corporation established a manufacturing facility in Stearns, Kentucky. Fibrotex USA leased an existing facility and began renovations to expand the facility. This facility began operations in 2019 but continues to undergo renovation and expansion. Fibrotex USA currently employs approximately 150 persons at the facility but expects to add 200 more persons when full production capacity is reached.¹¹

⁸ WRIS, *supra* note 4. This description does not include the addition that McCreary District is currently constructing to its existing sewer collection system. This addition consists primarily of: 28,750 linear feet of 1.5-inch high density polyethylene force main; 28,286 linear feet of 2-inch polyvinyl chloride (“PVC”) force main; 7,185 linear feet of 3-inch PVC force main; 10,399 linear feet of 4-inch PVC force main; 17,300 linear feet of 4-inch PVC gravity sewer main; and 170 grinder pump stations. See *Electronic Application of McCreary County Water District for Authorization to Execute an Assistance Agreement with the Kentucky Infrastructure Authority and for A Certificate of Public Convenience and Necessity to Construct the Sanitary Sewer Collection System Expansion Phase 1 Project*, Case No. 2020-00399 (Ky. PSC Mar. 24, 2021). T

⁹ 2021 Annual Sewer Report at Ref Page 4.

¹⁰ See *Fibrotex USA Selected to Deliver the U.S. Army’s Next-Generation Camouflage System*, Nov. 8, 2018, Soldier Systems, available at <https://soldiersystems.net/2018/11/08/fibrotex-usa-selected-to-deliver-the-u-s-armys-next-generation-camouflage-system/>; Matthew Beinart, *Army Awards Fibrotex USA 10-Year, \$480 Million to Deliver New Ultra-Light Camouflage*, Defense Daily, Nov. 8, 2018, available at <https://www.defensedaily.com/army-awards-fibrotex-usa-10-year-480-million-deliver-new-ultra-light-camouflage/army/>.

¹¹ See Press Release, Cabinet for Economic Development, Gov. Bevin Cuts Ribbon on 350-Job Fibrotex USA Facility in Stearns (Aug. 30, 2019), available at https://ced.ky.gov/newsarchive/ArchivePage.aspx?x=08292019_Fibrotex_USA.html; *Israel-Based Fibrotex USA Opens Manufacturing Complex in Stearns, Kentucky*, Sept. 3, 2019), Area Development, available at <https://www.areadevelopment.com/newsItems/9-3-2019/fibrotex-usa-outdoor-venture-stearns-kentucky.shtml>.

13. The Fibrotex USA facility manufactures fabrics used to produce military uniforms and camouflage systems. Because of its current limitations, fabrics are shipped to other locations twice in the manufacturing process and then returned to the Stearns facility for further processing. The processes at these other locations are very water intensive. When renovation and expansion of the Stearns facility is completed, all processes will occur there, and the facility's water usage and wastewater production are expected to increase significantly. Water usage and wastewater production will further increase as the plant increases production to meet required production schedules. Fibrotex USA expects to increase monthly plant output from 1,400 units to 2,500 units by December 2022. Further increases in monthly production output are dependent upon increasing the capacity of the sewer main and pump station serving the facility. Fibrotex USA has indicated that its monthly production will eventually increase to 5,000 units once those improvements are made. See **Exhibit 3** to this Application for the Fibrotex USA manufacturing facility's water and wastewater use projections.¹²

14. To address the limitation of the existing facilities handling wastewater from the Fibrotex USA manufacturing facility, McCreary District proposes the Economic Development Wastewater Improvements Project ("the Project"). The Project has two phases. The first phase, also known as Contract 37, addresses improvements to the pump station and sewer main that serves the Fibrotex USA facility. Contract 37 involves the installation of 6,375 LF of 8-inch polyvinyl chloride ("PVC") sewer force main, 180 LF of 8-inch PVC gravity sewer, 240 LF of 16-inch steel casing pipe, three sanitary sewer manholes, a 500 gallon per minute pump station and valve vault, one magnetic meter vault, and the replacement of McCreary District's sewage treatment plant's

¹² These projections were attached as an exhibit to the "Fibrotex Sanitary Sewer Pump Station Agreement," which addressed the current limitations to the existing wastewater pump station that served the Fibrotex USA facility. A copy of this agreement was previously filed with the Commission in Case No. 2021-00300.

existing screening system. Construction of the Contract 37 facilities would allow for increased wastewater flows from the Fibrotex USA manufacturing facility to McCreary District's sewage treatment facility. The Project's second phase is designed to improve the efficiency and effectiveness of McCreary District's treatment process and involves the replacement of sewage treatment plant's grit removal system and the construction of a third oxidation ditch concrete structure at the sewage treatment facility.

15. McCreary District has been awarded a U.S. Department of Commerce Economic Development Administration ("EDA") grant of \$1,779,760 and an Appalachian Regional Commission ("ARC") grant of \$444,940 to finance the construction of the proposed facilities. **Exhibit 4** and **Exhibit 5** to this Application. These grants are intended to stimulate private investment and encourage job development in McCreary County, Kentucky.¹³

16. The plans and specifications for the Contract 37 facilities are attached to this Application as **Exhibit 6** and **Exhibit 7** respectively.

17. The Kentucky Division of Water ("KDOW") has reviewed the plans and specifications for the Contract 37 facilities and has approved them with respect to sanitary features of design. A copy of the letter in which the KDOW states its approval is attached to this Application as **Exhibit 8**.

18. The Kentucky Department of Highways has issued to McCreary District permits for the excavation of public rights-of-way under its jurisdiction for those Contract 37 facilities that will be located within such rights-of-way. These permits are attached to this Application as **Exhibit 9**. Some Contract 37 facilities will be located on public rights-of-way under the

¹³ Approximately 36.2 percent of McCreary County's population is in a household whose annual income is less than the federal poverty level. McCreary County's median household income is \$29,499, which is less than half of the United States' median household income of \$64,994. U.S. Census Bureau, Quick Facts, McCreary County Kentucky, available at <https://www.census.gov/quickfacts/fact/table/mccrearycountykentucky,US/INC110220>.

jurisdiction of McCreary County Fiscal Court. Evidence of McCreary County Fiscal Court's approval of the use of these rights-of-way is attached to this Application as **Exhibit 10**. The location of these rights-of-way are shown on the map attached to this Application as **Exhibit 12B**.

19. None of the Contract 37 facilities require the acquisition of private easements nor do they involve any stream or creek crossings that would require a permit from the U.S. Army Corps of Engineers. All required permits for the proposed facilities have been obtained.

20. A description of the location and route of Contract 37 facilities is attached to this Application as **Exhibit 11** Maps depicting these locations and routes are attached to this Application as **Exhibits 12A and 12B**.

21. A copy of the Engineering Report for the Project is attached to this Application as **Exhibit 13**.¹⁴

22. The estimated cost for the Contract 37 facilities is \$1,751,352. The Project Engineer's Opinion of Probable Cost is attached as **Exhibit 14** to this Application.

23. In accordance with KRS Chapter 424, McCreary District caused to be published in the July 14, 2022 edition of *The McCreary County Voice* an advertisement for bids for Contract No. 37. A copy of this notice is attached to this Application as **Exhibit 15**. Three firms submitted bids in response to this notice. The certified bid tabulation is attached to this Application as **Exhibit 16**. The lowest bid was a bid of \$1,163,154 from Roses Excavating of Marshes Siding, Kentucky. This bid is effective for 90 days and may not be withdrawn before **October 27, 2022**. The Project Engineer has recommended that this bid be accepted. Its recommendation is attached to this Application as **Exhibit 17**.

¹⁴ While Exhibit 13 is referred to as a preliminary engineering report, no additional engineering reports have been or will be prepared. As the Project will not involve funding from Rural Development, no "final" engineering report is required.

24. On August 26, 2022, McCreary District’s Board of Commissioners awarded Contract 37 to Roses Excavating, contingent upon McCreary District obtaining a certificate of public convenience and necessity for the proposed construction or a declaratory order that the proposed construction does not require such certificate. A copy of this resolution is attached as **Exhibit 18** to this Application.

25. A statement of the annual cost of operation of the Contract 37 facilities is attached to this Application as **Exhibit 18**.

26. The Contract 37 facilities will not compete with other utilities’ facilities. Their construction will not result in wasteful duplication of existing facilities nor will their construction conflict with any existing certificates or services of any other utility operating in the area.

**C. Construction of the Contract 37 Facilities is an Ordinary Extension
in the Usual Course of Business and does not require a Certificate of
Public Convenience and Necessity**

27. The construction of the Contract 37 facilities meets the definition of an extension in the ordinary course of business as set forth in 807 KAR 5:001, Section 15(3). It will not result in the wasteful duplication of utility plant, will not result in the construction of facilities competing with the facilities of existing public utilities, and does not involve a sufficient capital outlay to materially affect McCreary District’s existing financial condition or to require an increase in McCreary District’s rates.

28. The legal standard for determining whether a proposed facility is “an ordinary extension in the usual course of business” is set forth in KRS 278.020(1) and 807 KAR 5:001, Section 15(3).¹⁵

¹⁵ *The Application of Northern Kentucky Water District (A) For Authority to Issue Parity Revenue Bonds in the Approximate Amount of \$16,545,000; and (B) A Certificate of Convenience and Necessity for the Construction of Water Main Facilities*, Case No. 2000-481 (Ky. PSC Aug. 30, 2001) at 4 (“When viewed together, KRS 278.020(1) and Administrative Regulation 807 KAR 5:001, Section 9(3) clearly identify those facilities for which a Certificate of

a. KRS 278.020(1) states:

No person, partnership, public or private corporation, or combination thereof shall commence providing utility service to or for the public or begin the construction of any plant, equipment, property, or facility for furnishing to the public any of the services enumerated in KRS 278.010, **except** retail electric suppliers for service connections to electric-consuming facilities located within its certified territory and **ordinary extensions of existing systems in the usual course of business**, until that person has obtained from the Public Service Commission a certificate that public convenience and necessity require the service or construction. [emphasis added].

b. 807 KAR 5:001, Section 15(3), provides:

Extensions in the ordinary course of business. No certificate of public convenience and necessity will be required for extensions that do not create wasteful duplication of plant, equipment, property or facilities, or conflict with the existing certificates or service of other utilities operating in the same area and under the jurisdiction of the commission that are in the general area in which the utility renders service or contiguous thereto, and that do not involve sufficient capital outlay to materially affect the existing financial condition of the utility involved, or will not result in increased charges to its customers.

c. Distilling this statute and regulation to their essentials, the Commission has declared that a Certificate is not necessary “for facilities that do not result in the wasteful duplication of utility plant, do not compete with the facilities of existing public utilities, and do not involve a sufficient capital outlay to materially affect the existing financial condition of the utility involved or to require an increase in utility rates.”¹⁶

29. “Wasteful duplication” is defined as an “excess of capacity over need” and “an excessive investment in relation to productivity or efficiency.”¹⁷ A proposed facility does not

Public Convenience and Necessity is not required.”) (referring to §15(3) prior to revisions in 807 KAR 5:001 that resulted in renumbering).

¹⁶ *Id.*

¹⁷ *Kentucky Utilities Co. v. Pub. Serv. Comm'n*, 252 S.W.2d. 885, 890 (Ky. 1952).

constitute wasteful duplication unless an “existing facility is reasonably available for the present and future needs of those who will be served by it.”¹⁸

30. The Contract 37 facilities will not result in wasteful duplication. They will not complete with the facilities of any other wastewater treatment provider in the area. They are needed to meet the increased demands for wastewater collection and treatment resulting from the Fibrotex USA manufacturing facility. As Fibrotex USA has a long-term contract to provide the facility’s output to the U.S. Army, the expansion of McCreary District’s facilities is necessary to meet present and future demand.

31. The Commission has consistently held that a capital outlay does not materially affect a utility’s existing financial condition or result in increased charges if the source of the capital does not require the utility to issue securities or evidences of indebtedness or create any other legal obligation on the utility’s part to repay or reimburse the source of that capital.

a. In Case No. 2014-00368,¹⁹ a small gas utility proposed to construct a \$200,000 pipeline to serve an industrial customer. Despite the relative size of the capital expenditure involved – the proposed project was equivalent to approximately 55 percent of the utility’s total gas plant in service and “represented a significant increase in the monetary value of [the utility’s] . . . system,” the project was held to be in the ordinary course because it did not involve sufficient capital to materially affect the utility’s financial condition.²⁰ The critical factor was the industrial customer’s assumption of the entire cost of the project and the lack of any financial impact on the rates of the utility’s existing customers or the utility’s financial condition.²¹

¹⁸ *Covington v. Board of Commissioners*, 371 S.W.2d 20, 23 (Ky. 1963).

¹⁹ *Valley Gas, Inc. Request for Approval of a Special Contract with Mago Construction Company and A Deviation from the Gas Cost Adjustment Clause*, Case No. 2014-00368 (Ky. PSC Oct. 28, 2014).

²⁰ *Id.* at 4-5.

²¹ See also *The Filing of a Special Contract by Natural Energy Utility Corporation*, Case No. 2018-00164 (Ky. PSC Sept. 6, 2018). In this case, a different gas utility’s construction of a pipeline intended to serve a single industrial customer and financed entirely by that customer was also deemed in the ordinary course. Interpreting the “capital

b. In Case No. 2017-00195,²² an electric and gas utility applied for a certificate to relocate and construct a 6,000 foot, 138-kilovolt electric transmission line on a landfill's property. The landfill's owner had requested the relocation to permit the landfill's expansion. To accommodate the owner, the utility also planned to relocate a gas transmission line but did not request a certificate for the relocation. The landfill owner would fund the total cost of \$3,865,000 of the gas transmission line relocation, with the exception of \$520,000 which the utility would incur to increase the diameter of the relocated line. The Commission found the relocation of the gas transmission pipeline was properly classified as an ordinary extension of an existing system in the usual course of business because the landfill owner was bearing most of the cost of the relocation.²³

c. In Cases No. 2019-00067²⁴ and No. 2020-00344²⁵, a water district incurred large and significant capital outlays, totaling over \$16 million,²⁶ to upgrade and improve the water treatment and distribution systems at the Fort Knox Military Installation. The water district was serving the military installation under a special contract that provided for surcharge to finance the proposed improvements. No funds other than those already provided by the Federal Government under the special contract were to be used for the capital improvements. The Commission in each

outlay" in terms of expenditures from the utility's funds and emphasized the ratemaking implications of using non-utility funds, the Commission found that "the proposed project will not materially affect the utility's existing financial condition and will not require an adjustment of its rates." *Id.* at 5.

²² *Electronic Application of Louisville Gas and Electric Company for A Certificate of Public Convenience and Necessity for the Construction of An Electric Transmission Line*, Case No. 2017-00195 (Ky. PSC Aug. 31, 2017).

²³ *Id.* at 6 ("Waste Management will fund all but \$500,000 of the relocation and construction costs. Therefore, the total capital investment in this project will not materially affect the financial condition of LG&E or result in increased charges to customers.")

²⁴ *Application of Hardin County Water District No. 1 for A Declaratory Order that Proposed Waterworks Improvements to Maintain Adequate and Reliable Water Service to the Fort Knox Military Installation Do Not Require A Certificate of Public Convenience and Necessity*, Case No. 2019-00067 (Ky. PSC May 30, 2019).

²⁵ *Electronic Application of Hardin County Water District No. 1 for A Declaratory Order Regarding the Applicability of KRS 278.020(1) to Proposed Improvements to Muldraugh Water Treatment Plant*, Case No. 2020-00344 (Ky. PSC Dec. 3, 2020).

²⁶ The cost of the proposed improvements was roughly equal to approximately 30.5 percent of Hardin County Water District No. 1's net water utility plant.

case found that the construction did not require a certificate, holding that the proposed construction was consistent with its prior holdings that “extensions necessary to serve a large, sophisticated customer and **wholly funded by that customer** pursuant to an agreement with that customer do not require a CPCN [certificate of public convenience and necessity], in part, because **they will not affect the financial condition of the utility** and will not result in an increase in charges to other customers.”²⁷

e. Consistent with these decisions, the Commission Staff in PSC Staff Opinion No. 2020-007²⁸ opined that a water district’s construction of a water storage tank at a cost of \$648,391, which was entirely funded through an ARC grant, was an extension in the ordinary course of business. It reasoned that the project would have no material effect on the water district’s finances or rates because it “was **funded entirely by a grant**, and . . . no loan or debt service is associated with the project.”²⁹ Commission Staff expressed the same position in several earlier opinions.³⁰

32. The capital outlay for Contract 37 will not affect McCreary District’s financial condition. No McCreary District’s funds will finance this capital outlay. All costs are funded by grants. McCreary District will incur no debt obligation or have any obligation to repay the grant

²⁷ Case No. 2020-00344, Order of Dec. 3, 2020 at 9 (emphasis added).

²⁸ Letter from J.E.B. Pinney, Acting General Counsel, Public Service Commission, to Steven P. Baily, legal counsel, Southern Water and Sewer District, subj: Request for Staff Advisory Opinion Regarding Replacement of Mink Branch Water Tank (Feb. 17, 2020).

²⁹ *Id.* at 2 (emphasis added).

³⁰ See PSC Staff Opinion 2016-005 (Feb. 25, 2016) (opining that water main extension project costing \$2,040,062 and funded totally with Abandoned Mine Lands grant would not involve a capital outlay that would materially affect utility’s financial condition or require an increase in its rates); PSC Staff Opinion 2012-019 (Sept. 11, 2012) (opining that construction of a natural gas main extension funded by the Kentucky Department of Education and a local school board would not material affect utility’s financial condition and not impact customer rates and did not require a certificate of public convenience and necessity); Letter from Beth O’Donnell, Executive Director, Public Service Commission, to Chris A. Stewart, HMB Professional Engineers, Inc., subj: Jessamine County Water District No. 1 Baker Lane Water Line Upgrade (Oct. 15, 2007) (opining that “as the funds for the proposed construction will come from outside sources and will not require the issuance of additional debt or any increased charges to customers, the proposed construction does not appear to materially affect . . . [utility’s] existing financial condition”).

monies. Construction of the Contract 37 facilities will not result in increased charges to its customers. To the contrary, by enabling the Fibrotex USA manufacturing facility to increase its production output and thus use greater amounts of water and produce greater amounts of wastewater for treatment, construction of the Contract 37 will likely result in greater revenues for McCreary District's water and sewer operations and prevent or significantly delay future rate increases. It is likely to foster job development and to stimulate economic growth in the area that McCreary District serves.

D. Filing Requirements of 807 KAR 5:071³¹

33. Pursuant to 807 KAR 5:071, Section 3(1), the following information and materials are provided regarding the facilities proposed to be constructed pursuant to Contract 37.

a. In view of its status a political subdivision of the Commonwealth of Kentucky³² and longstanding Commission precedent, McCreary District has sufficient financial integrity to ensure the continuity of utility service and is not required to provide a third-party beneficiary agreement guaranteeing the continuing operation of the proposed wastewater facilities or other evidence of financial integrity.³³

b. A copy of the approvals of plans and specifications for the Contract 37 facilities can be found at **Exhibit 6** and **Exhibit 7** to this Application.

³¹ While McCreary District takes the position that Contract No. 37 is an ordinary extension in the usual course of business, it is providing the information necessary to satisfy the requirements of 807 KAR 5:071 should the Commission find to the contrary.

³² *Louisville Extension Water District v. Diehl Pump & Supply Co. Inc.*, 246 S.W.2d 585 (Ky.1952).

³³ See, e.g., *Application of Mountain Water District For An Adjustment of Water and Sewer Rates*, Case No. 2014-00342, Dec. 8, 2014); *Joint Application of Lockwood Estates and Oldham County Sanitation District for Approval of the Transfer of Wastewater Treatment Facilities Pursuant To Asset Purchase Agreement Between the Parties*, Case No. 2002-00423 (Ky. PSC Jan. 23, 2003); *The Application of Reidland Water and Sewer District for Approval of the Acquisition of Wastewater Treatment Facilities in the Green Acres Subdivision and Fieldmont Estates Subdivision*, Case No. 92-473 (Ky. PSC Dec. 18, 1992); *The Joint Application of Boone County Water and Sewer District and Public Service Utilities for the Construction of Commerce Park Package Treatment Plant*, Case No. 90-337 (Ky. PSC Apr. 24, 1991).

c. Detailed maps of the Contract 37 facilities are attached to this Application as **Exhibit 12A** and **Exhibit 12B**.

d. A detailed estimated cost of the Contract 37 facilities, including all capitalized costs, is set forth in **Exhibit 14** to this Application.

e. For its financial exhibit, the following information is provided:

(1) For the 12-month period ending December 31, 2021, McCreary District's sewer operations had less than \$5,000,000 in gross annual revenues.

(2) McCreary District's 2021 Annual Sewer Report is incorporated by reference into this Application.

(3) No material changes have occurred in the financial condition of McCreary District's sewer operations since December 31, 2021.

f. McCreary District proposes to finance the cost of the Contract 37 facilities through an EDA grant of \$1,779,760 and an ARC grant of \$444,940. No costs will be recouped through customer contributions or lot sales.

g. McCreary District anticipates the approximate annual cost of operation for the Contract 37 facilities will be \$9,000. An explanation of these costs is attached as **Exhibit 18** of this Application.

h. The Contract 37 facilities are initially expected to serve one industrial customer. The expected average monthly water usage for this industrial customer is shown in **Exhibit 3** to this Application.

i. McCreary District has no affiliates or business relationships with any other entity regarding the operation of its existing or proposed sewer facilities.

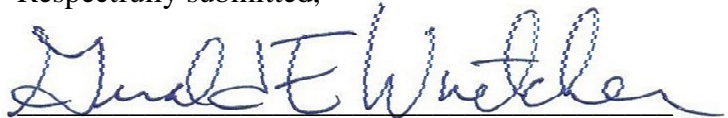
E. Requested Relief

WHEREFORE, McCreary County Water District requests that the Commission:

1. Place this Application at the head of the Public Service Commission's docket;
2. Enter an Order
 - a. Declaring that the Contract 37 facilities are an ordinary extension in the usual course of business and do not require a certificate of public convenience and necessity; or
 - b. Granting a certificate of public convenience and necessity for the Contract 37 facilities if construction of those facilities is found not to be an ordinary extension in the usual course of business;
3. Enter an Order granting the requested relief without holding an evidentiary hearing in this matter and no later **than October 15, 2022** to afford McCreary District adequate time to make the final award of Contract 37 before the expiration of the selected bid; and,
4. Grant any and all such other relief to which McCreary District may be entitled.

Dated: September 7, 2022

Respectfully submitted,

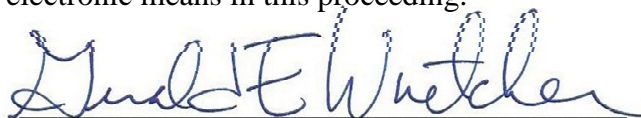


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Counsel for McCreary County Water District

CERTIFICATE OF SERVICE

In accordance with 807 KAR 5:001, Section 8 and the Commission's Order of July 22, 2021 in Case No. 2020-00085, I certify that this document was electronically transmitted to the Public Service Commission on September 7, 2022; and that there are currently no parties that the Commission has excused from participation by electronic means in this proceeding.

A handwritten signature in blue ink, reading "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 DECLARATORY ORDER

Source Authority	Requirement	Location
807 KAR 5:001, § 14(1)	Applicant's name, mailing address and e-mail address	Page 1, Para 1
807 KAR 5:001, § 14(1)	Statutory Reference – 807 KAR 5:001, Section 19	Page 1
807 KAR 5:001, § 4(3)	Signature of Applicant's Attorney	Page 15
807 KAR 5:001, § 4(3)	Name, Address, Telephone Number, Fax Number, and e-mail address of Applicant's Attorney	Page 15
807 KAR 5:001, § 14(2)	If Applicant is corporation: State and date of incorporation, attestation of good standing in state of incorporation, statement regarding authorization to transact business in Kentucky	Page 2, Para 2 Not Applicable
807 KAR 5:001, § 14(3)	If Applicant is a limited liability company: State and date of organization, attestation of good standing in state of incorporation, statement regarding authorization to transact business in Kentucky	Page 2, Para 2 Not Applicable
807 KAR 5:001, § 14(4)	If the Applicant is a limited partnership: a certified copy of limited partnership agreement and all amendments or statement identifying prior Commission proceedings in which limited partnership agreement and all amendments filed	Page 2, Para 2 Not Applicable
807 KAR 5:001, § 19(2)(a)	An Application for declaratory order shall be in writing	Application is in writing
807 KAR 5:001, § 19(2)(b)	Contain a complete, accurate, and concise statement of the facts upon which the application is based	Pages 4-13, Paras 12-32
807 KAR 5:001, § 19(2)(c)	Fully disclose the Applicant's Interest	Pages 4-8, Paras 12-26
807 KAR 5:001, § 19(2)(d)	Identify all statutes, administrative regulations, and orders to which the Application relates	Pages 8-13, Paras 27-32
807 KAR 5:001, § 19(2)(e)	States the Applicant's proposed resolution or conclusion	Page 8, Para 27 Page 15, Para 2a

FILING REQUIREMENTS

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

Source Authority	Requirement	Location
807 KAR 5:001, § 14(1)	Applicant's name, mailing address and e-mail address	Page 1, Para 1
807 KAR 5:001, § 14(1)	Statutory Reference – KRS 278.020	Page 1
807 KAR 5:001, § 4(3)	Signature of Applicant's Attorney	Page 15
807 KAR 5:001, § 4(3)	Name, Address, Telephone Number, Fax Number, and e-mail address of Applicant's Attorney	Page 15
807 KAR 5:001, § 14(2)	If Applicant is corporation: State and date of incorporation, attestation of good standing in state of incorporation, statement regarding authorization to transact business in Kentucky	Page 2, Para 2 Not Applicable
807 KAR 5:001, § 14(3)	If Applicant is a limited liability company: State and date of organization, attestation of good standing in state of incorporation, statement regarding authorization to transact business in Kentucky	Page 2, Para 2 Not Applicable
807 KAR 5:001, § 14(4)	If the Applicant is a limited partnership: a certified copy of limited partnership agreement and all amendments or statement identifying prior Commission proceedings in which limited partnership agreement and all amendments filed	Page 2, Para 2 Not Applicable
807 KAR 5:001, § 15(2)(a)	The facts relied upon to show that the public convenience and necessity requires the proposed construction	Pages 4-8, Paras 12-26 Exhibit 13
807 KAR 5:001, § 15(2)(b)	Copies of franchises or permits for the proposed construction or extension	Pages 6-7, Paras 17-19 Exhibits 8 , 9 , and 10
807 KAR 5:001, § 15(2)(c)	A full description of the proposed location, route, or routes of the proposed construction or extension, including a description of the manner in which same will be constructed, and the names of all public utilities, corporations, or persons with whom the proposed construction or extension is likely to compete	Page 7, Para 20 Page 8, Para 26 Exhibits 11 , 12A , and 12B

Source Authority	Requirement	Location
807 KAR 5:001, § 15(2)(d)(1)	Maps to suitable scale showing the location or route of the proposed construction or extension, as well as the location to scale of like facilities owned by others located anywhere within the map area with adequate identification as to the ownership of the other	Page 7, Para 20 Exhibits 12A and 12B
807 KAR 5:001, § 15(2)(d)(2)	Plans and specifications and drawings of the proposed plant, equipment, and facilities	Page 6, Para 16 Exhibits 6 and 7
807 KAR 5:001, § 15(2)(e)	The manner in detail in which the Applicant proposes to finance the proposed construction or extension.	Page 6, Para 15 Page 14, Para 33(f)
807 KAR 5:001, § 15(2)(f)	An estimated annual cost of operation after the proposed facilities are placed into service	Page 8, Para 25 Exhibit 19
807 KAR 5:071, § 3(1)(a)	A copy of a valid third-party beneficiary agreement guaranteeing the continued operation of the sewage treatment facilities or other evidence of financial integrity such as will insure the continuity of sewage service	Page 13, Para 33(a) Not Applicable
807 KAR 5:071, § 3(1)(b)	A copy of a preliminary approval issued by the Division of Water Quality of the Kentucky Department for Natural Resource and Environmental Protection approving the plans and specifications of the proposed construction	Page 6, Para 17 Page 13, Para 33(b) Exhibit 8
807 KAR 5:071, § 3(1)(c)	A detailed map of the sewage treatment facilities showing location of plant, effluent discharge, collection mains, manholes, and utility service area	Page 7, Para 20 Page 14, Para 33(c) Exhibits 12A and 12B
807 KAR 5:071, § 3(1)(d)	A detailed estimated cost of construction which should include all capitalized costs	Page 7, Para 22 Page 14, Para 33(d) Exhibit 14
807 KAR 5:071, § 3(1)(e)	A financial exhibit as described in Section 12 of 807 KAR 5:001, Section 12	Page 14, Para 33(e)
807 KAR 5:071, § 3(1)(f)	The manner, in detail, in which it is proposed to finance the new construction, specifically stating amount to be invested, recouped through lot sales, or contributions (to be) received, etc.	Page 6, Para 15 Page 14, Para 33(f)
807 KAR 5:071, § 3(1)(g)	An estimated cost of operation after the proposed facilities are completed	Page 8, Para 25 Page 14, Para 33(g) Exhibit 19

Source Authority	Requirement	Location
807 KAR 5:071, § 3(1)(h)	An estimate of the total number of customers to be served by the proposed sewage treatment facilities, initially and ultimately the class of customers served (i.e., residential, commercial, apartments, recreational, institutional, etc.) and the average monthly water consumption for each class of customer	Page 14, Paras 34(h) Exhibit 3
807 KAR 5:071, § 3(1)(i)	A copy of the latest tax returns (federal and state, if applicable) filed by the applicant.	Not Applicable
807 KAR 5:071, § 3(1)(j)	A detailed depreciation schedule of all treatment plant, property and facilities, both existing and proposed, listing all major components of “package” treatment plants separately (ignore if rates not sought)	Not Applicable
807 KAR 5:071, § 3(1)(k)	The proposed rates to be charged for each class of customers and an estimate of the annual revenues derived from the customers using the proposed rate schedules (ignore if rates not sought)	Not Applicable
807 KAR 5:071, § 3(1)(l)	A full and complete explanation of corporate or business relationships between the applicant and a parent or brother-sister corporation, subsidiary(ies), a development corporation(s), or any other party or business to afford the commission a full and complete understanding of the situation	Not Applicable
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	Exhibits 6 , 7 , 13 , and 16

EXHIBITS

TABLE OF EXHIBITS

<u>Exhibit No.</u>	<u>Description</u>
1	Orders of McCreary County Court Establishing McCreary County Water District and Modifying its Territory
2	Resolution of McCreary County Water District Board of Commissioners Authorizing Filing of Application
3	Fibrotex USA Manufacturing Facility Production Schedule
4	Financial Assistance Award (Economic Development Administration)
5	Appalachian Regional Commission Grant Award - McCreary County Infrastructure Project KY-20159-302-20
6	Contract No. 37 Plans
7	Contract No. 37 Specifications
8	Letter from Terry Humphries, P.E., Supervisor, Engineering Section, Water Infrastructure Branch, Kentucky Division of Water, to Stephen Whitaker, Superintendent, McCreary County Water District, subj: Fibrotex Sanitary Sewer PS and FM (June 21, 2021)
9	Kentucky Department of Highways Encroachment Permits
10	McCreary County Fiscal Court Resolutions Authorizing Use of County Road Right-of-Ways
11	Description of Route and Location of Proposed Facilities
12	Project Maps
12A	Topographical Map of Route and Facilities
12B	Aerial Map of Route and Facilities
13	Engineering Report
14	Project Engineer’s Opinion of Probable Cost – Contract No. 37
15	Newspaper Advertisement for Bids on Contract No. 37
16	Certified Bid Tabulations for Contract No. 37
17	Recommendation of Project Engineer

Exhibit No.	Description
18	A Resolution of the Board of Commissioners of McCreary County Water District to Awarding Contract No. 37 - Fibrotex Sanitary Sewer Pump Station and Force Main
19	Statement of Annual Cost of Operation of the Contract No. 37 Facilities
20	News Articles and Related Materials Regarding the Fibrotex USA Contract Award and Manufacturing Facility
20A	Matthew Beinart, <i>Army Awards Fibrotex USA 10-Year, \$480 Million to Deliver New Ultra-Light Camouflage</i> , Defense Daily, Nov. 8, 2018
20B	<i>Fibrotex USA Selected to Deliver the U.S. Army's Next-Generation Camouflage System</i> , Soldier Systems, Nov. 8, 2018
20C	<i>Israel-Based Fibrotex USA Opens Manufacturing Complex in Sterns, Kentucky</i> , Sept. 3, 2019, Area Development
20D	Press Release, Cabinet for Economic Development, Gov. Bevin Cuts Ribbon on 350-Job Fibrotex USA Facility in Sterns (Aug. 30, 2019)
21	References Regarding Proposed Construction's Material Affect on a Utility's Financial Condition if Construction Funding is contributed from non-utility sources
21A	<i>Valley Gas, Inc. Request for Approval of a Special Contract with Mago Construction Company and A Deviation from the Gas Cost Adjustment Clause</i> , Case No. 2014-00368 (Ky. PSC Oct. 28, 2014)
21B	<i>The Filing of a Special Contract by Natural Energy Utility Corporation</i> , Case No. 2018-00164 (Ky. PSC Sept. 6, 2018).
21C	<i>Electronic Application of Louisville Gas and Electric Company for A Certificate of Public Convenience and Necessity for the Construction of An Electric Transmission Line</i> , Case No. 2017-00195 (Ky. PSC Aug. 31, 2017)
21D	<i>Application of Hardin County Water District No. 1 for A Declaratory Order that Proposed Waterworks Improvements to Maintain Adequate and Reliable Water Service to the Fort Knox Military Installation Do Not Require A Certificate of Public Convenience and Necessity</i> , Case No. 2019-00067 (Ky. PSC May 30, 2019).
21E	<i>Electronic Application of Hardin County Water District No. 1 for A Declaratory Order Regarding the Applicability of KRS 278.020(1) to Proposed Improvements to Muldraugh Water Treatment Plant</i> , Case No. 2020-00344 (Ky. PSC Dec. 3, 2020)
21F	PSC Staff Opinion 2020-007
21G	PSC Staff Opinion 2016-005

Exhibit

No.

Description

21H PSC Staff Opinion 2012-019

21I Letter from Beth O'Donnell, Executive Director, Public Service Commission, to Chris A. Stewart, HMB Professional Engineers, Inc., subj: Jessamine County Water District No. 1 Baker Lane Water Line Upgrade (Oct. 15, 2007)

EXHIBIT 1

ORDERS

McCreary

COURT

Special Term, November Day, 5 Day of November 1962

McCreary County Court
Special Term
November 5, 1962

The said Will of John Brooks, having lain over for a period of thirty days for exceptions, none being filed same was this day approved by the Court, and same was ordered to record.

Whereupon the said Will was duly recorded on the 5 day of November 1962.

/s/ Prince L. Stephens, Judge

McCreary County Court
Special October Term
October , 1962

IN RE: MATTER OF THE ESTATE OF M. NEAL, DECEASED

ORDER APPOINTING ADMINISTRATRIX

On the application filed by Sallie Neal on the 29th day of October 1962, for the appointment as administratrix as required by law, administration of the estate of M. Neal, late of this county, is granted Sallie Neal, whereupon the said Sallie Neal took the necessary fiduciary's oath and qualified as required by law and filed herein the executed bond in the sum of \$1540.00, the amount fixed by the Court with Arnold Davenport as surety, all of which is approved by the Court and said administratrix shall hereafter assume the administration of the estate of M. Neal.

This 29th day of October 1962.

/s/ Prince L. Stephens, Judge

McCreary County Court

Special November Term

November 16, 1962

In Re: Order Establishing and Creating the McCreary County Water District:

In accordance with Chapter #74 of the Kentucky Revised Statutes, Section #74.010 thereof, a petition was filed with this Court on October 5, 1962, containing more than seventy-five (75) names of resident freeholders of the hereinafter described water district in McCreary County, Kentucky, and in said petition said free holders have prayed for the creation and establishment of the hereinafter water district in McCreary County, Kentucky,

The Court finds and determines that said petition has been filed in this Court more than thirty days, that a notice to the public has been given by publication in the McCreary County Record, a news paper published in McCreary County, Kentucky and in three issues of said paper, that no objections have been made to this Court against the creation and establishing of said water district and the time of more than thirty days having expired for objections, the Court finds and adjudges as follows:

1. The Court hereby sustains the allegations of the petition filed herein and by authority of the Sections of Chapter #74 of the Kentucky Revised Statutes hereby establishes a water district in McCreary County, Kentucky to be known and designated as "McCreary County Water District" and described as follows, to-wit:

ORDERS

McCreary

COURT

Special Term, November Day, 16 Day of November 19 62

Form O-7T

Beginning at a point in McCreary County, Kentucky in the center of old Highway #27, one-half mile north of Sand Hill Road and said old U. S. Highway #27 intersection and extending directly eastward for a distance of three miles; thence following a line southward and parallel to the meanders of old U. S. Highway #27 to a point two miles south of the intersection of Highway #92, east of Pine Knot, Kentucky, thence westward directly to and crossing U. S. Highway (old) #27 for a distance of three miles west of Highway #27; thence northward following a line parallel with the meanders of old U. S. Highway #27 to a point three miles directly west of the beginning point; thence turning eastward, a straight line to the beginning point, thus including an area designated as the McCreary County Water District.

In so far as this Court has authority to act, all former established water districts of McCreary County, Kentucky are hereby superseded and included in the area hereby established in the description set out herein and agreements and obligations heretofore made or entered into by reason of former water districts should be legally honored by the Commissioners hereinafter named.

The Court hereby appoints the following named as members of the McCreary County Water District, Dr. M. A. Winchester, appointed for a term of 4 years; for a term of three years, A. W. Holmes; and Eldred Musgrove for a term of 2 years who have taken oath to faithfully perform the duties of his position and executed a Bond for the faithful performace of their duties which bond is approved by the Court.

Given under my hand as Judge of McCreary County, Kentucky, this November 16, 1962.

/s/ Prince L. Stephens, Judge
McCreary County, Kentucky

McCREARY COUNTY COURT

RE: ESTATE OF JOHN JOSEPH RILEY, DECEASED
TO: ORDER APPOINTING LORA WOOD ADMINISTRATRIX

This day came Lora Wood, in open Court, and offered to file and, was by the Court, permitted to file her petition for letters of administration and for appointment as Administratrix of the Estate of John Joseph Riley and, it being shown that Evadene Wood Riley, the surviving widow of decedent, has heretofore been declared incompetent and has never been restored, and that said surviving widow is the sole surviving heir of John Joseph Riley, deceased, it is now ordered by the Court that Lora Wood be, and she is hereby appointed Administratrix of the estate of John Joseph Riley, deceased. The said applicant, Lora Wood, being in open Court accepted said trust, executed bond in the penal sum of none required at present, with Dewey Spradlin as her surety, and took the oath of office and otherwise qualified as Administratrix of said estate, as required by law, and the bond offered by the said Lora Wood, with Dewey Spradlin as surety, is now and hereby approved by the Court, and Lora Wood having fully qualified, she is now and hereby appointed Administratrix of the estate of John Joseph Riley, deceased.

Witness my hand this 28 day of November 1962.

/s/ Prince L. Stephens, Judge
McCreary County Court

McCREARY COUNTY WATER DISTRICT by Eldred E. Musgrove, Chairman of its Board of Commissioners, and R. H. Anderson and O. O. Duncan, Members of the Board.

PETITIONERS

VS.

JUDGMENT

ENLARGING THE TERRITORIAL LIMITS OF THE McCREARY COUNTY WATER DISTRICT BY ANNEXATION.

This cause came on for a hearing on the 11th day of July, 1969, in the McCreary County Court Room at the Court House, Whitley City, Kentucky, at the hour of 10:00 A. M., with the Hon. A. W. Holmes, Judge of the McCreary County Court, presiding.

It appearing to the Court that the petition of the McCreary County Water District by Eldred E. Musgrove, Chairman of its Board of Commissioners, and R. H. Anderson and O. O. Duncan, Members of the Board, to enlarge the territorial limits of the McCreary County Water District by annexation contained a description of the territory to be annexed, set out the reasons for said annexation and otherwise met and complied with the law set out in KRS 74.110; and it further appearing that notice of the filing of the petition, containing a description of the proposed annexation, together with a notification to the public that they had 30 days in which to file objections and exceptions to the petition, and including notice that a hearing on the petition and upon the objections would be held at the time and place set out in the first paragraph hereof was placed in the McCreary County Record, a newspaper of general circulation in McCreary County, Kentucky, in its June 19, 17 and 24, 1969, publications, pursuant to KRS. 424.130-150 on legal notices; and it further appearing that the McCreary County Water District is located in McCreary County, Kentucky, and the territory to be annexed adjoins and encompasses said district and is located exclusively in said county and state; that no defense, objection or remonstrance has been made to the petition by anyone; and that the Court has heard the testimony of the petitioners in support of their petition for annexation that the annexation was reasonably necessary for the public health, convenience, fire protection and comfort of the residents thereof and would materially enhance the economic development of the district as a whole and would benefit and profit the owners of property and the inhabitants of the area, IT IS, THEREFORE, ORDERED AND ADJUDGED THAT:

The proposed annexation be, and it is hereby created, established and annexed; that the territorial limits of said annexation, which is inclusive of and contains within its perimeter the original McCreary County Water District, is described as follows:

Situate, lying and being in McCreary County, Kentucky, and more particularly described as follows:

The geographical area and political entity of McCreary County, Kentucky, and all the lands contained within its territorial boundaries.

The entire County of McCreary of the Commonwealth of Kentucky be, and is hereby, denominated as and known by its official, corporate and business name of McCreary County Water District.

Given under my hand as Judge of the McCreary County Court, this 11th day of July, 1969.

/S/ A. W. Holmes
McCreary County Court
Whitley City, Kentucky.

STATE OF KENTUCKY

COUNTY OF McCREARY

I, Carl Earnett, Clerk of the County and State aforesaid, certify that the foregoing Judgment is a true and correct copy as appears of record here in my office in

Witnessed
21st day of August, 1973

EXHIBIT 2

RESOLUTION NO. _____

**A RESOLUTION OF THE BOARD OF COMMISSIONERS OF
MCCREARY COUNTY WATER DISTRICT AUTHORIZING AN
APPLICATION TO THE KENTUCKY PUBLIC SERVICE
COMMISSION FOR DECLARATORY ORDER, OR IN THE
ALTERNATIVE, A CERTIFICATE OF PUBLIC CONVENIENCE
AND NECESSITY**

WHEREAS, McCreary County Water District is a water district organized pursuant to KRS Chapter 74:

WHEREAS, KRS 278.015 provides that water districts are public utilities and are subject to the jurisdiction of the Kentucky Public Service Commission;

WHEREAS, McCreary County Water District owns and operates a sewage collection and treatment system that provides sewer service to the residents of McCreary County, Kentucky;

WHEREAS, McCreary County Water District's sewer collection and treatment operations are subject to the jurisdiction and regulation of the Kentucky Public Service Commission;

WHEREAS, KRS 278.020(1) requires a public utility to obtain a certificate of public convenience and necessity prior to the construction of any facility for furnishing sewer service to the public unless such construction is an extension of an existing system in the usual course of business;

WHEREAS, McCreary County Water District proposes to construct a 500 gallon per minute pump station and 6,410 linear feet of 8-inch force main to handle additional wastewater flows in its collection system ("the Project") at an approximate construction cost of \$1,163,154;

WHEREAS, McCreary County Water District proposes to finance the proposed construction with the proceeds of a grant of \$1,779,760 from the Economic Development Administration of the U.S. Department of Commerce and a grant of \$444,940 from the Appalachian Regional Commission;

WHEREAS, the Kentucky Public Service Commission has previously determined that, if the cost of a proposed facility will not require a utility to make a capital outlay from its own funds or to issue securities or evidences of indebtedness, the construction of the proposed facility will have no material effect on the utility's financial condition and will constitute an extension of an existing system in the usual course of business; and

WHEREAS, there is uncertainty as to whether KRS 278.020(1) requires McCreary County Water District to obtain a certificate of public convenience and necessity to construct the Project;

NOW, THEREFORE, IT IS HEREBY RESOLVED BY THE BOARD OF COMMISSIONERS OF MCCREARY 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 General Manager, all appropriate Staff, and McCreary County Water District's attorney are hereby further authorized and directed to take any and all actions to apply to the Kentucky Public Service Commission for a declaratory order regarding the need to obtain a certificate of public convenience and necessity to construct the Project, or in the alternative for such other relief as appropriate and necessary to ensure that McCreary County Water District's construction of the Project is consistent with the requirements of KRS 278.020.

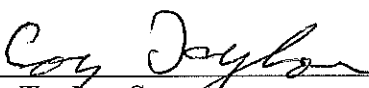
Section 3. This Resolution shall take effect upon its adoption.

ADOPTED BY THE BOARD OF COMMISSIONERS OF MCCREARY COUNTY WATER DISTRICT at a meeting held on August 26, 2022, signed by the Chairman and attested by the Secretary.



Randy Kidd, Chairman

ATTEST:

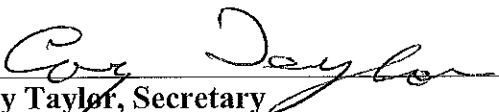


Coy Taylor, Secretary

CERTIFICATION

I, the undersigned, hereby certify that I am the duly qualified and acting Secretary of the McCreary County Water District; that the foregoing is a full, true and correct copy of a Resolution adopted by the Board of Commissioners of the McCreary County Water District at a meeting duly held on August 26, 2022; that said official action appears as a matter of public record in McCreary 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 26th day of August 2022.



Coy Taylor, Secretary

EXHIBIT 3

FIBROTEX SANITARY SEWER PUMP STATION AGREEMENT

This agreement is made on the 16th day of May 2019, between ~~Fibrotex USA~~ of 30 Venture Drive, Stearns Ky, and the McCreary County Water District, of 456 North Highway 27, P.O. Box 488, Whitley City, KY 42653, to-wit:

WHEREAS, Fibrotex USA [hereafter referred to as "Fibrotex"] is in the process of opening a manufacturing plant in Stearns, McCreary County, Kentucky, which is projected to use water and sewer services to be provided by the McCreary County Water District [hereafter "MCWD"], and the parties desire to agree to certain parameters of service the MCWD can provide using its current system equipment and capacities. The subject agreement shall be based upon providing such water and sewer services in accordance with Fibrotex's use projections as specifically set out by Fibrotex and furnished to the MCWD in a document entitled A Water and Waste - Water Consumption for Fibrotex USA Plant@, on or about May 7, 2019, as more specifically set forth and shown on the A1400 Systems Monthly@ portion of the document, a copy of which is attached hereto and made a part hereof and marked as Exhibit AA@.

WHEREAS, Fibrotex's current plan is to purchase water and sewer service for its plant based upon the projected usage rates set out on Exhibit "A", the "1400 Systems Monthly" projections, at the specified usage rates for which MCWD is capable of providing using current equipment and facilities pending approval of such services from existing facilities being by the Commonwealth of Kentucky, Division of Water of the Energy and Environment Cabinet [hereinafter "Division of Water"]. These monthly flow rates are not to exceed 803,605 gallons of water per month, with Fibertex's average flow requirement and discharge projections not to exceed 27 gallons per minute [gpm] with the peak instantaneous flow not to exceed 66 gpm, all as shown on Exhibit AA@.

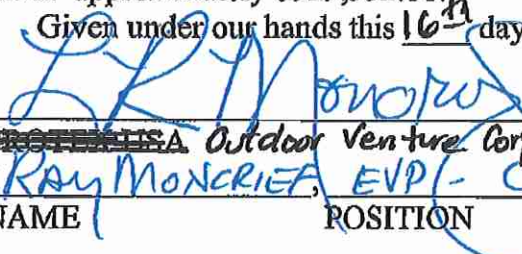
The parties hereto are aware that the Division of Water has previously approved Eclipse Engineer's design specifications, as set out below, for a new upgraded pump station and other improvements and that such agency may not approve such water and sewer services being furnished by the MCWD from existing facilities. Furthermore the parties are aware that even if MCWD obtains a favorable decision from the Division of Water based upon the "1400 Systems Monthly" projections, in practice the demand may overload the system's pumping capacity causing pump failure, or Fibertex's consumption, peak flow rates, and instantaneous flow rates may change in the future based upon Fibertex's operational and manufacturing characteristics and product output which may necessitate facility improvements by the MCWD. If so these issues and/or future changes and upgrades will entail modifications in MCWD's facilities requiring

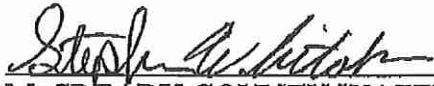
significant capital expenditures which must be borne by Fibertex.

NOW THEREFORE, the parties have agreed that should these water usage and/or flow rates at any time after the date of this agreement exceed the stated parameters set out on the "1400 Systems Monthly" projections shown on Exhibit AA@, and should such excessive usage and/or flow rates result in equipment, mechanical, and/or regulatory failures and/or incurred expenses for the MCWD, Fibrotex shall, at the sole discretion of the MCWD, immediately pay for any and all such expenses incurred by MCWD attributable to Fibrotex's excessive usage, flow rate, or service demand such as, but not limited to, the repair or replacement of pumps .

Furthermore, the parties agree that if repeated episodes of such excessive water usage and/or sewer discharge flow cause system failures and chronic insufficiencies of capacity, such as pump failures and/or sanitary system overflows, Fibrotex agrees to pay for the construction of an improved sanitary sewer system in accordance with plans and specifications as originally designed by MCWD engineers which are dated on or about January, 2019. These plans and specifications are entitled "Fibrotex Waterline and Sanitary Sewer Extensions, January, 2019" prepared by Eclipse Engineers, PLLC for the MCWD and have been provided to Fibrotex for its review on or about January 8, 2019, and are commonly referred to as "The Fibrotex project cost spreadsheet@" with a projected project cost of approximately \$529,332.00.

Given under our hands this 16th day of May, 2019.


~~FIBROTEX USA~~ Outdoor Venture Corporation
BY Ray Moncrief, EVP - COO
NAME POSITION


McCREARY COUNTY WATER DISTRICT
BY Stephen Whitaker, Superintendent
NAME POSITION

Note: All references to Fibrotex USA is amended to Outdoor Venture Corporation

Water and Waste - Water Consumption for Fibrotex USA Plant

October 8, 2018
 Revised:
 February 14, 2019
 Revised:
 April 11, 2019
 Revised:
 May 7, 2019

1400 Systems Monthly		
56000 run/ mtrs		
Machine/Process	Number of Machines	Consumption m3/Month
Printing	2	1121
Beams	1	1680
Finishing	1	70
Print, Paste	1	36
Drum Washer	1	34
Vapor	1	101
m3		3042
Gallons per Month		803,605
Gallons per Day*		38,267
Gallons per Minute		27
Gallons per Minute PEAK***		66
Plant Capacity %**		4.3

2500 Systems Monthly		
100000 run/ mtrs		
Machine/Process	Number of Machines	Consumption m3/Month
Printing	2	1998
Beams	2	3000
Finishing	1	175
Print, Paste	1	60
Drum Washer	1	48
Vapor	1	180
m3		5451
Gallons per Month		1,442,632
Gallons per Day*		68,697
Gallons per Minute		48
Gallons per Minute PEAK***		119
Plant Capacity %**		7.6

5000 Systems Monthly		
200000 run/ mtrs		
Machine/Process	Number of Machines	Consumption m3/Month
Printing	2	3999
Beams	2	6000
Finishing	1	350
Print, Paste	1	120
Drum Washer	1	96
Vapor	1	360
m3		10925
Gallons per Month		2,886,057
Gallons per Day*		137,431
Gallons per Minute		95
Gallons per Minute PEAK***		239
Plant Capacity %**		15.3

1400 Systems Monthly		
56000 run/ mtrs		
Machine/Process	Number of Machines	Consumption m3/Month
Printing	2	1121
Beams	1	1680
Finishing	1	70
Print, Paste	1	36
Drum Washer	1	34
Vapor	1	101
m3		3042
Gallons per Month		803,605
Gallons per Day*		38,267
Gallons per Minute		27
Gallons per Minute PEAK***		66
Plant Capacity %**		4.3

2500 Systems Monthly		
100000 run/ mtrs		
Machine/Process	Number of Machines	Consumption m3/Month
Printing	2	1998
Beams	2	3000
Finishing	1	175
Print, Paste	1	60
Drum Washer	1	48
Vapor	1	180
m3		5451
Gallons per Month		1,442,632
Gallons per Day*		68,697
Gallons per Minute		48
Gallons per Minute PEAK***		119
Plant Capacity %**		7.6

5000 Systems Monthly		
200000 run/ mtrs		
Machine/Process	Number of Machines	Consumption m3/Month
Printing	2	3999
Beams	2	6000
Finishing	1	350
Print, Paste	1	120
Drum Washer	1	96
Vapor	1	360
m3		10925
Gallons per Month		2,886,057
Gallons per Day*		137,431
Gallons per Minute		95
Gallons per Minute PEAK***		239
Plant Capacity %**		15.3

*Based on a 30-day Month (21 Production Days)
 **Based on District WWTP Plant Capacity of 900,000 GPD
 ***Based on a 2.5 peaking factor

*Based on a 30-day Month (21 Production Days)
 **Based on District WWTP Plant Capacity of 900,000 GPD
 ***Based on a 2.5 peaking factor

*Based on a 30-day Month (21 Production Days)
 **Based on District WWTP Plant Capacity of 900,000 GPD
 ***Based on a 2.5 peaking factor

Projected Revenue Calculations

Water	
803,605 gallons per month	
First 2000 gallons	\$ 20.35
All over 2000 gallons	\$ 5,410.83
Monthly Water Invoice	\$ 5,431.18
Annual District Revenue	\$ 65,174.22
Sewer	
803,605 gallons per month	
First 2000 gallons	\$ 19.35
Next 18,000 gallons	\$ 121.50
All over 20,000 gallons	\$ 4,701.63
Monthly Sewer Invoice	\$ 4,842.48
Annual District Revenue	\$ 58,109.77

Water	
1,442,632 gallons per month	
First 2000 gallons	\$ 20.35
All over 2000 gallons	\$ 9,724.27
Monthly Water Invoice	\$ 9,744.62
Annual District Revenue	\$ 116,935.42
Sewer	
1,442,632 gallons per month	
First 2000 gallons	\$ 19.35
Next 18,000 gallons	\$ 121.50
All over 20,000 gallons	\$ 8,535.79
Monthly Sewer Invoice	\$ 8,576.64
Annual District Revenue	\$ 104,119.73

Water	
2,886,057 gallons per month	
First 2000 gallons	\$ 20.35
All over 2000 gallons	\$ 19,467.39
Monthly Water Invoice	\$ 19,487.74
Annual District Revenue	\$ 233,852.84
Sewer	
2,886,057 gallons per month	
First 2000 gallons	\$ 19.35
Next 18,000 gallons	\$ 121.50
All over 20,000 gallons	\$ 17,196.34
Monthly Sewer Invoice	\$ 17,337.19
Annual District Revenue	\$ 208,046.32

Exhibit A

EXHIBIT 4

GRANT COOPERATIVE AGREEMENT

FINANCIAL ASSISTANCE AWARD

FEDERAL AWARD ID NUMBER
04-79-07457

RECIPIENT NAME
McCreary County Water District

PERIOD OF PERFORMANCE
45 months after date of EDA approval

STREET ADDRESS
456 North Highway 27

FEDERAL SHARE OF COST
\$ 1,779,760

CITY, STATE, ZIP CODE
Whitley City, Kentucky 42653

RECIPIENT SHARE OF COST
\$ 444,940

AUTHORITY
Public Works and Economic Development Act of 1965, as amended

TOTAL ESTIMATED COST
\$ 2,224,700

CFDA NO. AND NAME
11.307 Economic Adjustment Program

PROJECT TITLE
Sewer Infrastructure

This Award Document (Form CD-450) signed by the Grants Officer constitutes an obligation of Federal funding. By signing this Form CD-450, the Recipient agrees to comply with the Award provisions checked below and attached. Upon acceptance by the Recipient, the Form CD-450 must be signed by an authorized representative of the Recipient and returned to the Grants Officer. If not signed and returned without modification by the Recipient within 30 days of receipt, the Grants Officer may unilaterally withdraw this Award offer and de-obligate the funds.

- DEPARTMENT OF COMMERCE FINANCIAL ASSISTANCE STANDARD TERMS AND CONDITIONS
- R & D AWARD
- FEDERAL-WIDE RESEARCH TERMS AND CONDITIONS, AS ADOPTED BY THE DEPT. OF COMMERCE
- SPECIFIC AWARD CONDITIONS (See attached Exhibit "A")
- LINE ITEM BUDGET (See Attachment 1)
- 2 CFR PART 200, UNIFORM ADMINISTRATIVE REQUIREMENTS, COST PRINCIPLES, AND AUDIT REQUIREMENTS, AS ADOPTED PURSUANT TO 2 CFR § 1327.101
- 48 CFR PART 31, CONTRACT COST PRINCIPLES AND PROCEDURES
- MULTI-YEAR AWARD. PLEASE SEE THE MULTI-YEAR SPECIFIC AWARD CONDITION.
- OTHER(S): EDA Standard Terms and Conditions for Construction Projects, dated February 12, 2016

SIGNATURE OF DEPARTMENT OF COMMERCE GRANTS OFFICER

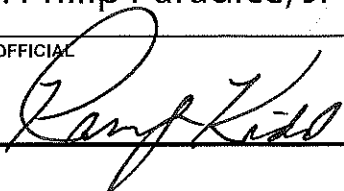
H. Philip Paradise, Jr., Director, Atlanta Regional Office

DATE

Digitally signed by H. Philip Paradise, Jr
Date: 2020.05.27 14:58:38 -04'00'

PRINTED NAME, PRINTED TITLE, AND SIGNATURE OF AUTHORIZED RECIPIENT OFFICIAL

Randy Kidd, Chairman, McCreary County Water District



DATE

05/29/2020

EXHIBIT "A"

U.S. DEPARTMENT OF COMMERCE
Economic Development Administration (EDA)

Public Works and Development Facilities

Investment No.: 04-79-07457

Recipient: McCreary County Water District, Kentucky

SPECIFIC AWARD CONDITIONS

1. **PROJECT DEVELOPMENT TIME SCHEDULE:** The Recipient agrees to the following Project development time schedule:

Time allowed after Receipt of Financial Assistance Award for:

Return of Executed Financial Assistance Award..... 30 days
Start of Construction..... 18 Months from Date of Grant Award
Construction Period..... 24 Months

Project Closeout – All Project closeout documents including final financial information and any required program reports shall be submitted to the Government not more than 90 days after the date the Recipient accepts the completed project from the contractor(s).

The Recipient shall pursue diligently the development of the Project so as to ensure completion within this time schedule. Moreover, the Recipient shall notify the Government in writing of any event, which could delay substantially the achievement of the Project within the prescribed time limits. The Recipient further acknowledges that failure to meet the development time schedule may result in the Government’s taking action to terminate the Award in accordance with the regulations as provided in the CD-450.

2. **GOALS FOR WOMEN AND MINORITIES IN CONSTRUCTION:** Department of Labor regulations set forth in in 41 CFR 60-4 establish goals and timetables for participation of minorities and women in the construction industry. These regulations apply to all Federally assisted construction contracts in excess of \$10,000. The Recipient shall comply with these regulations and shall obtain compliance with 41 CFR 60-4 from contractors and subcontractors employed in the completion of the Project by including such notices, clauses and provisions in the Solicitations for Offers or Bids as required by 41 CFR 60-4. The goal for the participation of women in each trade area shall be as follows:

From April 1, 1981, until further notice: 6.9 percent

All changes to this goal, as published in the Federal Register in accordance with the Office of Federal Contract Compliance Programs regulations at 41 CFR 60-4.6, or any successor regulations, shall hereafter be incorporated by reference into these Special Award Conditions.

Goals for minority participation shall be as prescribed by Appendix B-80, Federal Register, Volume 45, No. 194, October 3, 1980, or subsequent publications. The Recipient shall include the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" (or cause them to be included, if appropriate) in all Federally assisted contracts and subcontracts. The goals and timetables for minority and female participation may not be less than those published pursuant to 41 CFR 60-4.6.

3. **REPORT ON UNLIQUIDATED OBLIGATIONS:** All Recipients of an EDA grant award of more than \$100,000 whose Award has not been fully disbursed is required to submit Form SF-425, "*Financial Status Report*" to EDA semi-annually to report on the status of unreimbursed obligations. This report will provide information on the amount of allowable Project expenses that have been incurred, but not claimed for reimbursement by the Recipient. The first report shall be as of March 30 of each year and shall be submitted to EDA no later than April 30 of each year, and the second report shall be as of September 30 of each year and shall be submitted to EDA no later than October 30 of each year. The Recipient must submit a final financial report using Form SF-425 within 90 days of the expiration date of the Award (or from the date the Recipient accepts the Project from the contractor, whichever occurs earlier). Noncompliance with these requirements will result in the suspension of disbursements under this Award. Financial reports are to be submitted to the Project Officer.
4. **PRESERVATION OF OPEN COMPETITION AND GOVERNMENT NEUTRALITY TOWARDS GOVERNMENT CONTRACTORS LABOR RELATIONS ON FEDERAL AND FEDERALLY FUNDED CONSTRUCTION PROJECTS:** Pursuant to E.O. 13202, "Preservation of Open Competition and Government Neutrality Towards Government Contractors' Labor Relations on Federal and Federal Funded Construction Projects," unless the Project is exempted under section 5(c) of the order, bid specifications, project agreements, or other controlling documents for construction contracts awarded by Recipients of grants or cooperative agreements, or those of any construction manager acting on their behalf, shall not: a) include any requirement or prohibition on Bidders, Offerors, Contractors, or Subcontractors about entering into or adhering to agreements with one or more labor organizations on the same or related construction Project(s); or b) otherwise discriminate against Bidders, Offerors, Contractors, or Subcontractors for becoming or refusing to become or remain signatories or otherwise to adhere to agreements with one or more labor organizations, on the same or other related construction Project(s).
5. **ENGINEERING CERTIFICATE/CERTIFICATE OF TITLE:** The Recipient, prior to Solicitation of bids for construction of this Project, shall furnish to the Government an acceptable Engineering Certificate showing all lands, rights-of-way and easements necessary for construction of this Project along with an acceptable Certificate of Title on said lands, rights-of-way and easements showing good and merchantable title free of mortgages or other foreclosable liens and an Owners Certification as to Eminent Domain.

6. **NONRELOCATION:** In signing this award of financial assistance, Recipient(s) attests that EDA funding is not intended by the Recipient to assist its efforts to induce the relocation of existing jobs that are located outside of its jurisdiction to within its jurisdiction in competition with other jurisdictions for those same jobs. In the event that EDA determines that its assistance was used for those purposes, EDA retains the right to pursue appropriate enforcement action in accord with the Standard Terms and Conditions of the Award, including suspension of disbursements and termination of the award for convenience or cause.
7. **REFUND CHECKS, INTEREST OR UNUSED FUNDS:** Treasury has given the EDA two options for having payments deposited to our account with it:

The first one is Pay.Gov. This option allows the payee to pay EDA through the Internet. The payee will have the option to make a one-time payment or to set up an account to make regular payments.

The second option is Paper Check conversion. All checks must identify on their face the name of the DoC agency funding the award, award number, and no more than a two-word description to identify the reason for the refund or check. A copy of the check should be provided to the Federal Project Officer. This option allows the payee to send a check to NOAA's accounting office, who processes EDA's accounting functions at the following address: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Finance Office, AOD, EDA Grants, 20020 Century Boulevard, Germantown, MD 20874. The accounting staff will scan the checks in encrypted file to the Federal Reserve Bank, and the funds will be deposited in EDA's account. While this process will not be an issue with most payees who are corporations, it could be an issue for individuals sending EDA funds. Please make note of the following.

Notice to Customers Making Payment by Check

If you send EDA a check, it will be converted into an electronic funds transfer by copying your check and using the account information on it to electronically debit your account for the amount of the check. The debit from your account will usually occur within 24 hours and will appear on your regular account statement.

You will not receive your original check back. Your original check will be destroyed, but a copy of it will be maintained in our office. If the EFT cannot be processed for technical reasons, the copy will be processed in place of the original check. If the EFT cannot be completed because of insufficient funds, we will charge you a one-time fee of \$25.00, which will be collected by EFT.

8. **SCOPE OF WORK:** Recipient(s) agrees to undertake, prosecute and complete the Scope of Work (SOW) for this Project funded by this Award which SOW is approved and agreed to by the Government as subsequently amended in mutually agreed upon written change order(s) and/or SOW amendment(s), if any. The SOW shall be as set forth and described in a.) the application submitted by Recipient(s) and/or Recipient's authorized representative(s) to the Government for this Award together with b.) all enclosures, materials, documents and other

submittals accompanying and supporting the application, c.) all additional materials, documents and/or correspondence requested by the Government and submitted by Recipient(s) and/or Recipient's authorized representative(s) in support and furtherance of the application and d.) such change(s) and/or SOW amendments, if any, requested in writing by the Recipient(s) and/or Recipient's authorized representative subsequent to the date of this Award and approved and agreed to in writing by the Government. To the extent such additional materials, documents and/or correspondence amends and/or clarifies the application, such amendment or clarification shall be controlling. It is agreed that the Recipient(s) and Government intend that the SOW describes a discrete, detailed and specific project that is funded and authorized by this Award and to that end the application and the above described additional information shall be fairly construed to and shall describe the SOW. The scope of work for this project is further described below:

This project will replace existing sewer lines with 2,000 LF of 4" force main and 6,500 LF of 8" force main. The existing 100 GPM lift station serving the site, will be replaced with a new 500 GPM lift station. Upgrades at the wastewater treatment plant will consist of screenings, grit removal, replacement of influent pumps, construction of an equalization system and sludge de-watering improvements.

9. **CONSTRUCTION PERMITS:** Prior to the first disbursement of funds under this Award, the Recipient shall obtain the permits described in item 3 of the Certificate of Engineer, Part One of the above referenced CERTIFICATE AS TO PROJECT SITE, RIGHTS-OF-WAY, AND EASEMENTS.

10. **REPORTING OF MATTERS RELATED TO RECIPIENT INTEGRITY AND PERFORMANCE**

A. *General Reporting Requirement*

If the total value of your currently active grants, cooperative agreements, and procurement contracts from all Federal awarding agencies exceeds \$10,000,000 for any period of time during the period of performance of this Federal award, then you as the recipient during that period of time must maintain the currency of information reported to the System for Award Management (SAM) that is made available in the designated integrity and performance system (currently the Federal Awardee Performance and Integrity Information System (FAPIIS)) about civil, criminal, or administrative proceedings described in paragraph B of this award term and condition. This is a statutory requirement under section 872 of Public Law 110-417, as amended (41 U.S.C. 2313). As required by section 3010 of Public Law 111-212, all information posted in the designated integrity and performance system on or after April 15, 2011, except past performance reviews required for Federal procurement contracts, will be publicly available.

B. *Proceedings About Which You Must Report*

Submit the information required about each proceeding that:

Is in connection with the award or performance of a grant, cooperative agreement, or procurement contract from the Federal Government;

Reached its final disposition during the most recent five-year period; and

Is one of the following:

- (a) A criminal proceeding that resulted in a conviction, as defined in paragraph E of this award term and condition;
- (b) A civil proceeding that resulted in a finding of fault and liability and payment of a monetary fine, penalty, reimbursement, restitution, or damages of \$5,000 or more;
- (c) An administrative proceeding, as defined in paragraph E. of this award term and condition, that resulted in a finding of fault and liability and your payment of either a monetary fine or penalty of \$5,000 or more or reimbursement, restitution, or damages in excess of \$100,000; or
- (d) Any other criminal, civil, or administrative proceeding if:
 - (i) It could have led to an outcome described in paragraph B.3.(a), (b), or (c) of this award term and condition;
 - (ii) It had a different disposition arrived at by consent or compromise with an acknowledgment of fault on your part; and
 - (iii) The requirement in this award term and condition to disclose information about the proceeding does not conflict with applicable laws and regulations.

C. Reporting Procedures

Enter in the SAM Entity Management area the information that SAM requires about each proceeding described in paragraph B of this award term and condition. You do not need to submit the information a second time under assistance awards that you received if you already provided the information through SAM because you were required to do so under Federal procurement contracts that you were awarded.

D. Reporting Frequency

During any period of time when you are subject to the requirement in paragraph A of this award term and condition, you must report proceedings information through SAM for the most recent five-year period, either to report new information about any proceeding(s) that you have not reported previously or affirm that there is no new information to report. Recipients that have Federal contract, grant, and cooperative agreement awards with a cumulative total value greater than \$10,000,000 must disclose semiannually any information about the criminal, civil, and administrative proceedings.

E. Definitions

For purposes of this award term and condition:

1. Administrative proceeding means a non-judicial process that is adjudicatory in nature in order to make a determination of fault or liability (*e.g.*, Securities and Exchange Commission Administrative proceedings, Civilian Board of Contract

Appeals proceedings, and Armed Services Board of Contract Appeals proceedings). This includes proceedings at the Federal and State level but only in connection with performance of a Federal contract or grant. It does not include audits, site visits, corrective plans, or inspection of deliverables.

2. Conviction, for purposes of this award term and condition, means a judgment or conviction of a criminal offense by any court of competent jurisdiction, whether entered upon a verdict or a plea, and includes a conviction entered upon a plea of *nolo contendere*.
3. Total value of currently active grants, cooperative agreements, and procurement contracts includes:
 - (a) Only the Federal share of the funding under any Federal award with a recipient cost share or match; and
 - (b) The value of all expected funding increments under a Federal award and options, even if not yet exercised.

11. **WASTE, FRAUD AND ABUSE:** Consistent with 2 CFR part 200, at the Government's direction, at any time(s) during the estimated useful life Project, Recipient's personnel responsible for managing the Recipient's finances and overseeing any contractors, sub-contractors or sub-grantees (for finances and/or oversight for both this Project and otherwise), will take a training on preventing waste, fraud and abuse as provided by the Government. The Government will provide instructions on when and how to take the training. In the event there are co-recipients of this Award, the obligations in the Special Award Condition shall apply to all recipients whether or not designated in this Award as the Lead Recipient.

Further, Recipient will monitor award activities for common fraud schemes (hereinafter "Fraud Schemes"), such as but not limited to:

- false claims for materials and labor,
- bribes related to the acquisition of materials and labor,
- product substitution,
- mismarking or mislabeling on products and materials, and
- time and materials overcharging.

Should Recipient detect any Fraud Schemes or any other suspicious activity, Recipient will contact the Government's Atlanta Regional Counsel at 404-730-3002 and the Department of Commerce, Office of Inspector General, as indicated at

<https://www.oig.doc.gov/Pages/Contact-Us.aspx>, as soon as possible.

12. **STRENGTHENING BUY-AMERICAN PREFERENCES FOR INFRASTRUCTURE PROJECTS:** The Recipient(s) is/are encouraged to use, to the greatest extent practicable, iron and aluminum as well as steel, cement, and other manufactured products produced in the United States in every contract, subcontract, purchase order, or sub-award that is chargeable under this Award.
13. **PROJECT ADMINISTRATION SERVICE AGREEMENT:** The Recipient, prior to invitation for bids, must submit to the Government for approval a Project Administration Service Agreement for project administration services charged against the grant award.
14. **ARCHITECT/ENGINEER AGREEMENT:** The Recipient, prior to invitation for bids, must submit to the Government for approval an Architect/Engineer agreement that meets the requirements of Section IV E of the "Summary of EDA Construction Standard, August 2016" as well as the competitive procurement standards of 2 CFR Part 200, as applicable. The fee for basic Architect/Engineer services shall be a lump sum or an agreed maximum and no part of the fees for other services shall be based upon a cost-plus-a-percentage-of-cost or a cost using a multiplier. The Recipient must also provide to the Government all documents related to the selection of the Architect/Engineer that show the selection was made competitively.
15. **PLANS & SPECIFICATIONS:** Recipient agrees to and shall cause the following to be placed on the plans and specification for the project: "In the event that human remains are encountered during project activities, all work should be immediately stopped in the area. The area should be cordoned off, and in accordance with KRS 72.020 the county coroner and local law enforcement must be contacted immediately. Upon confirmation that the human remains are not of forensic interest, the unanticipated discovery must be reported to the Kentucky Heritage Council."

U.S. DEPARTMENT OF COMMERCE
ECONOMIC DEVELOPMENT ADMINISTRATION

PUBLIC WORKS PROJECT COST CLASSIFICATIONS

EDA Investment No. 04-79-07457

State: Kentucky

County: McCreary

<u>Cost Classification</u>	<u>Proposed</u>	<u>Approved</u>
Administrative and legal expenses	\$ 50,000	\$ 50,000
Land, structures, and rights-of-way appraisals, etc.		
Relocation expenses and payments (Cost incidental to transfer of titles)		
Architectural and engineering fees	140,000	140,000
Other architectural and engineering fees		
Project inspection fees and audit	85,500	85,500
Site Work		
Demolition and removal		
Construction	1,772,000	1,772,000
Equipment		
Miscellaneous		
Contingencies	177,200	177,200
TOTAL PROJECT COSTS	\$ 2,224,700	\$ 2,224,700

Remarks:

EXHIBIT 5



To: Tim Thomas, Federal Co–Chair

Subject: McCreary County Infrastructure Project
KY-20159-302-20

Grantee: McCreary County Water District
Whitley City, KY

County(s): Distressed: McCreary

Basic Agency: Economic Development Administration

Goal: ARC Goal 3, Objective 2. State Strategy 3: Kentucky's Investment in Infrastructure through maintenance and expansion of eastern Kentucky's water and wastewater systems and broadband and telecommunication systems.

Purpose: This project will support current and future expansion and development in McCreary County's industrial base.

Funding:

ARC (CADCI)	\$444,940	20%
Other Federal	\$1,779,760	80%
Total	\$2,224,700	100%

Other federal = EDA grant.

Description:

The McCreary County Water District requests ARC assistance to construct sewer lines and upgrade its wastewater treatment facility to better support the county's expanding industrial sector. The current expansion of a local plant, which will create 150 new jobs and generate \$1 million in leveraged private investment, has underscored the need to upgrade the county's wastewater collection and treatment infrastructure.

Specifically, the project will replace existing sewer lines with 2,000 linear feet of 4-inch mains and 5,900 linear feet of 8-inch force main. It will also replace the existing 100 gallon per minute (gpm) lift station with a 500 gpm lift station. Upgrades at the wastewater treatment plant (WWTP) include screenings, grit removal, and the replacement of the influent pumps, construction of an equalization system, and improvements to the sludge de-watering process. These improvements will allow the WWTP to treat industrial waste.

Rationale/Benefits:

McCreary County is considered to be one of the poorest in the United States, with a pre-COVID unemployment rate of 5.5%, 1.4 times the national average. The private sector has traditionally been the source of the majority of the county's employment. The county is actively recruiting manufacturing operations to support its transition from natural resources extraction, including coal mining and timber. Upgrades to the wastewater collection and treatment system are needed to support the successful expansion of this sector. Given the county's distressed status, grant funding is needed to realize the necessary upgrades.

Performance Measure (Outputs):

This project will construct 2,000 linear feet of 4-inch main and 5,900 liner feet of 8-inch force main for a total of 7,900 linear feet of wastewater lines. These lines and the improved, 0.9 million gallons per day (MGD) capacity wastewater treatment plant, will serve 240 businesses and 860 households.

Performance Measure (Outcomes):

The project will improve 240 businesses and 860 households. The added ability of the WWTP to treat industrial waste will support the expansion of a local facility that will create 150 new jobs and generate \$1 million in leveraged private investment.

This project will have a primary impact on distressed areas. The project is consistent with the ARC Act and Code and is recommended for funding.

Recommended:

<u>Charles Howard</u>	<u>9/29/2020 4:19 PM</u>
Executive Director	Date Recommended

Approved:

<u>Tim Thomas</u>	<u>9/30/2020 9:31 AM</u>
Federal Co-Chair	Date Approved

EXHIBIT 6

**DOCUMENT FILED
SEPARATELY**

EXHIBIT 7

Specifications

for:

Contract No. 37 – Fibrotex Sanitary Sewer Pump Station and Force Main

McCreary County Water District
456 North Hwy 27
Whitley City, Kentucky 42653

July 2022



Prepared by:



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**MCCREARY COUNTY WATER DISTRICT
WHITLEY CITY, KENTUCKY
CONTRACT NO. 37 - FIBROTEX SANITARY SEWER PUMP STATION AND FORCE MAIN**

ADVERTISEMENT FOR BIDS

Sealed Bids for the construction of the **Contract No. 37 - Fibrotex Sanitary Sewer Pump Station and Force Main** will be received by **McCreary County Water District**, at the office of the **456 North Hwy 27, Whitley City, Kentucky 42653**, until **3:00PM** local time on **July 28, 2022**, at which time the Bids received will be **publicly** opened and read. The project will include the installation of 6,375 LF of 8-inch PVC force main, 180 LF of 8-inch PVC gravity sewer, 240 LF of 16-inch steel casing Pipe (directional bore), 3 sanitary sewer manholes, one pump station and valve vault, one mag meter vault, demolition and installation of a new screening system, and related appurtenances.

Bids will be received for a single prime Contract. Bids shall be on a unit price and lump price basis, as indicated in the Bid Form.

The Issuing Office for the Bidding Documents is: **Lynn Imaging, 328 Old Vine Street, Lexington, Kentucky 40507 (859) 255-1021**. Prospective Bidders may examine the Bidding Documents at the Issuing Office on Mondays through Fridays between the hours of **7:30AM – 5:00PM**, and may obtain copies of the Bidding Documents from the Issuing Office as described below.

Bidding Documents also may be examined at **Eclipse Engineers PLLC, 113 West Mt. Vernon Street, Somerset, Kentucky 42501 (606) 451-0959**, at the office on Mondays through Fridays between the hours of **8:00AM – 5:00PM**.

Bidding Documents may be obtained from the Issuing Office during the hours indicated above or online at www.lynnimaging.com. Bidding Documents are available via download (as portable document format (PDF) files) for a non-refundable charge of \$ 200 **two hundred dollars**. Alternatively, printed Bidding Documents may be obtained from the Issuing Office either via in-person pick-up or via mail, upon Issuing Office's receipt of payment for the Bidding Documents. The non-refundable cost of printed Bidding Documents is \$ 400 **four hundred dollars** per set, payable to "**Lynn Imaging**", plus a non-refundable shipping charge. Upon Issuing Office's receipt of payment, printed Bidding Documents will be sent via the prospective Bidder's delivery method of choice; the shipping charge will depend on the shipping method chosen. The date that the Bidding Documents are transmitted by the Issuing Office will be considered the prospective Bidder's date of receipt of the Bidding Documents. Partial sets of Bidding Documents will not be available from the Issuing Office. Neither Owner nor Engineer will be responsible for full or partial sets of Bidding Documents, including Addenda if any, obtained from sources other than the Issuing Office.

No bid will be accepted unless the BIDDER is a *registered plan holder*. To become a *registered plan holder*, BIDDER must purchase at least one set of documents from Lynn Imaging and provide accurate name and contact information. Partial sets of documents will not be provided. Half-sized sets may be purchased for the full price. Questions shall be addressed to Alan R. Robinson, P.E. of Eclipse Engineers, PLLC, 113 West Mt. Vernon Street, Somerset, Kentucky 42501 (606-451-0959) as stated in the Specifications or by email to arobinson@eclipseengineers.net.

The OWNER reserves the right to waive any informality or to reject any or all bids.

Each BIDDER must deposit with his Bid, security in the amount, form and subject to the conditions provided in the Instructions to Bidders.

No BIDDER may withdraw his Bid within ninety (90) consecutive calendar days after the actual date of the opening thereof.

The U.S. Department of Commerce Economic Development Administration is providing partial funding for this project (EDA Investment No. 04-79-07457), and therefore, is subject to the Federal laws and regulations associated with that program.

Bid security shall be furnished in accordance with the Instructions to Bidders.

Owner: **McCreary County Water District**

By: **Stephen Whitaker**

Title: **Superintendent**

Date: **July 28, 2022**

++ END OF ADVERTISEMENT FOR BIDS ++

SUGGESTED INSTRUCTIONS TO BIDDERS

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ARTICLE 1 – DEFINED TERMS

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

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

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

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

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

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

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

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

A. [Evidence of Bidder's authority to do business in the state where the Project is located.]

B. [Bidder's state or other contractor license number, if applicable.]

C. [Subcontractor and Supplier qualification information; coordinate with provisions of Article 12 of these Instructions, "Subcontractors, Suppliers, and Others."]

D. [Other required information regarding qualifications]

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

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

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

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

4.01 *Site and Other Areas*

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

4.02 Existing Site Conditions

A. Subsurface and Physical Conditions; Hazardous Environmental Conditions

1. The Supplementary Conditions identify:
 - a. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site.
 - b. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
 - c. reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - d. Technical Data contained in such reports and drawings.
2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.
4. Geotechnical Baseline Report: The Bidding Documents contain a Geotechnical Baseline Report (GBR). The GBR describes certain select subsurface conditions that are anticipated to be encountered by Contractor during construction in specified locations ("Baseline Conditions"). The GBR is a Contract Document.

The Baseline Conditions in the GBR are intended to reduce uncertainty and the degree of contingency in submitted Bids. However, Bidders cannot rely solely on the Baseline Conditions. Bids should be based on a comprehensive approach that includes an independent review and analysis of the GBR, all other Contract Documents, Technical Data, other available information, and observable surface conditions. Not all potential subsurface conditions are baselined.

Nothing in the GBR is intended to relieve Bidders of the responsibility to make their own determinations regarding construction costs, bidding strategies, and Bid prices, nor of the responsibility to select and be responsible for the means, methods, techniques, sequences, and procedures of construction, and for safety precautions and programs incident thereto.

- B. Underground Facilities: Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or adjacent to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.
- C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data

furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.

4.03 *Site Visit and Testing by Bidders*

- A. Bidder shall conduct the required Site visit during normal working hours, and shall not disturb any ongoing operations at the Site.
- B. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- C. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site.
- D. Bidder shall comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- E. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

4.04 *Owner's Safety Program*

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

4.05 *Other Work at the Site*

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

ARTICLE 5 – BIDDER'S REPRESENTATIONS

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

- A. examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;
- B. visit the Site, conduct a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfy itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;

- C. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work;
- D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings;
- E. consider the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs;
- F. agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
- G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;
- I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and
- J. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 6 – PRE-BID CONFERENCE (OMITTED)

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

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

ARTICLE 8 – BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of **5 percent** of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a certified check, bank money order, or a Bid bond (on the form included in the Bidding Documents) issued by a surety meeting the requirements of Paragraphs 6.01 and 6.02 of the General Conditions.
- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract Documents, furnished the required contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults.
- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Contract or 91 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.
- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within seven days after the Bid opening.

ARTICLE 9 – CONTRACT TIMES

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

ARTICLE 10 – LIQUIDATED DAMAGES

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

ARTICLE 11 – SUBSTITUTE AND "OR-EQUAL" ITEMS

- 11.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or "or-equal" items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or "or-equal" item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.
- 11.02 All prices that Bidder sets forth in its Bid shall be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or-equal" or substitution requests are made at Bidder's sole risk.

ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 12.01 A Bidder shall be prepared to retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of the Work if required by the Bidding Documents (most commonly in the Specifications) to do so. If a prospective Bidder objects to retaining any such Subcontractor, Supplier, or other individual or entity, and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.
- 12.02 Subsequent to the submittal of the Bid, Owner may not require the Successful Bidder or Contractor to retain any Subcontractor, Supplier, or other individual or entity against which Contractor has reasonable objection.
- 12.03 The apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of the Subcontractors or Suppliers proposed for the following portions of the Work: **Division 0 (EJCDC)**
- If requested by Owner, such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder shall submit a substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.
- 12.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.06 of the General Conditions.

ARTICLE 13 – PREPARATION OF BID

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

- 13.04 A Bid by a limited liability company shall be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the firm's address for receiving notices shall be shown.
- 13.05 A Bid by an individual shall show the Bidder's name and address for receiving notices.
- 13.06 A Bid by a joint venture shall be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture's address for receiving notices shall be shown.
- 13.07 All names shall be printed in ink below the signatures.
- 13.08 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 13.09 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 13.10 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 – BASIS OF BID

14.01 *Lump Sum*

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

14.02 *Unit Price*

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

ARTICLE 15 – SUBMITTAL OF BID

- 15.01 With each copy of the Bidding Documents, a Bidder is furnished one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 7 of the Bid Form.
- 15.02 A Bid shall be received no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope

containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "**BID ENCLOSED – Contract No. 37 - Fibrotex Sanitary Sewer Pump Station and Force Main.**" A mailed Bid shall be addressed to **McCreary County Water District, 456 North Hwy 27, Whitley City, Kentucky 42653.**

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

ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID

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

ARTICLE 17 – OPENING OF BIDS

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

ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

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

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

- 19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible. If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, then the Owner will reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work.
- 19.02 If Owner awards the contract for the Work, such award shall be to the responsible Bidder submitting the lowest responsive Bid.
- 19.03 Evaluation of Bids

- A. In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
 - B. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.
 - C. Bid prices will be compared after adjusting for differences in time of Substantial Completion (total number of calendar days to substantially complete the Work) designated by Bidders. The adjusting amount will be determined at the rate set forth in the Agreement for liquidated damages for failing to achieve Substantial Completion, or such other amount that Owner has designated in the Bid Form.
 - 1. The method for calculating the lowest bid for comparison will be the summation of the Bid price shown in the Bid Form plus the product of the Bidder-specified time of Substantial Completion (in calendar days) times the rate for liquidated damages (in dollars per day).
 - 2. This procedure is only used to determine the lowest bid for comparison and contractor selection purposes. The Contract Price for compensation and payment purposes remains the Bid price shown in the Bid Form.
- 19.04 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.
- 19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 20 – BONDS AND INSURANCE

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

ARTICLE 21 – SIGNING OF AGREEMENT

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

ARTICLE 22 – SALES AND USE TAXES

22.01 Owner is exempt from Kentucky state sales and use taxes on materials and equipment to be incorporated in the Work. (Exemption No. [_____]). Said taxes shall not be included in the Bid. Refer to Paragraph SC-7.09 of the Supplementary Conditions for additional information.

ARTICLE 23 – CONTRACTS TO BE ASSIGNED

BID FORM

Contract No. 37 - Fibrotex Sanitary Sewer Pump Station and Force Main

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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

McCreary County Water District, 456 North Hwy 27, Whitley City, Kentucky 42653.

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

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

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

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

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

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

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

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

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

E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance

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

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

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

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Contract No. 37 - Fibrotex Sanitary Sewer Pump Station and Force Main

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
1	General Conditions	LS	1		
2	8-inch PVC SDR 35 Gravity Sewer	LF	180		
3	12-inch PVC SDR 35 Gravity Sewer	LF	11		
4	8-inch PVC SDR 21 Force Main	LF	6,375		
5	16-inch Steel Casing Pipe – Directional Bore	LF	240		
6	2-inch Combination Air Release Valve Assembly	EA	3		
7	4-foot Diameter Manhole	EA	3		
8	Connect to Manhole (G-1)	EA	1		
9	Connect to Existing 2-inch Force Main	LS	1		
10	Cut and Cap Existing Force Main	EA	1		
11	Removal of Existing Manhole	EA	2		
12	Removal of Existing Sanitary Sewer Piping	LS	1		
13	Pumps and Controls	LS	1		
14	Wetwell and Valve Vault	LS	1		
15	Mag Meter Vault	LS	1		
16	Emergency Generator Concrete Pad	LS	1		
17	Miscellaneous Electric	LS	1		
18	Chain-Link Fence with Gate	LF	140		
19	Gravel Entrance Including Fenced Area	LS	1		
20	Bituminous Pavement Replacement	SY	240		
21	Demolition of Existing Screening System	LS	1		
22	Purchase and Installation of New Screening System	LS	1		
Total of All Unit Price Bid Items					\$

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.

Unit Price Bids = Total Bid Price

\$ _____

ARTICLE 6 – TIME OF COMPLETION

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

ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security;
 - B. List of Proposed Subcontractors;
 - C. List of Proposed Suppliers;
 - D. List of Project References;
 - E. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;
 - F. Contractor's License No.: _____
 - G. Required Bidder Qualification Statement with supporting data; and
 - H. *[List other documents and edit above as pertinent]*

ARTICLE 8 – DEFINED TERMS

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

ARTICLE 9 – BID SUBMITTAL

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

By:
[Signature] _____

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

Attest:
[Signature] _____

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail address: _____

Bidder's License No.: _____
(where applicable)

SECTION 00400 - SUPPLEMENTS TO BID FORM

PART 1 - BIDDER'S QUALIFICATIONS

- A. The required names and addresses of all persons interested in the foregoing Bid, as PRINCIPALS, are as follows:

- B. The requested statement of work of a similar character to that included in the proposed Contract and references to enable the OWNER to judge the BIDDER'S experience, skill and business standing are as follows:

(Add supplementary pages if necessary)

PART 2 - SUBCONTRACTORS

Proposed subcontractors must be listed below with the corresponding branch of work (i.e. Seeding and Sodding, Pavement Restoration, etc.) to be performed by the named Subcontractor. All subcontractors are subject to the approval of the OWNER. Failure to submit a completed list may be cause for rejection of the Bid.

BRANCH OF WORK	NAME AND ADDRESS OF SUBCONTRACTOR
1. Electric	
2. Bores	
3.	

(Add supplemental pages if necessary)

PART 3 - LIST OF PROPOSED MANUFACTURERS

NOTICE: This list is required to be completed by the apparent low bidder within fifteen (15) minutes after completion of the Bid Tabulation by the Owner and then submitted to the Owner as a required part of the bidding process. All material manufacturers are subject to review and approval of the Owner. Failure to complete and submit this completed list can be cause of rejection of the Bid.

MATERIAL (EQUIPMENT)	NAME OF EQUIPMENT AND MATERIAL MANUFACTURER
1. PVC Pipe	
2. Encasement Pipe	
3. Precast Manholes	
4. Wetwell and Valve Vault	
5. Mag Meter Vault	
6. Mag Meter	
7. Variable Frequency Drives (VFD's)	
8. Submersible Pumps	
9. Check Valves	
10. Plug Valves	
11. Air Release Valves (ARV's)	

12. Perforated Plate Filter Screen	
13. Screw Wash Press	

Submission of this Material Manufacturers List by the apparent low bidder and subsequent acceptance by the Owner **does not** constitute approval by the Owner of specific product, nor does such acceptance waive the BIDDER'S responsibility to fully comply with all requirements of the Drawings or Specifications. Variance from this list can only be accomplished by written approval from the Owner and then only after approvable justification. If a manufacturer cannot be accepted by the Owner within 24 hours of the bid opening, then the apparent low bidder must submit an approvable manufacturer within five (5) days of the bid opening or the Owner may select one of the manufacturers listed in Specifications. (Should no manufacturer be listed, then the Owner may select one that meets the requirements of the Specifications.)

END OF SECTION 00400

NOTICE OF AWARD

TO: _____

PROJECT Description: _____

The OWNER has considered the BID submitted by you for the above described WORK in response to its Advertisement for Bids dated _____, 20____, and Information for Bidders.

You are hereby notified that your BID has been accepted for items in the amount of \$ _____.

You are required by the Information for Bidders to execute the enclosed Agreement and furnish the required CONTRACTOR'S Performance BOND, Payment BOND and certificates of insurance within fifteen (15) calendar days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said BONDS within fifteen (15) days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER's acceptance of your BID as abandoned and as a forfeiture of your BID BOND. The OWNER will be entitled to such other rights as may be granted by law.

Within ten (10) days of your compliance of 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.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this _____ day of _____, 20____.

Owner: _____

By: _____

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged

By _____, this the _____ day

of _____, 20_____.

Title _____

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

THIS AGREEMENT is by and between McCreary County Water District (“Owner”) and _____ (“Contractor”).

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

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

ARTICLE 2 – THE PROJECT

2.01 *The Project, of which the Work under the Contract Documents is a part, is generally described as follows: The project will include the installation of 6,375 LF of 8-inch PVC force main, 180 LF of 8-inch PVC gravity sewer, 240 LF of 16-inch steel casing Pipe (directional bore), 3 sanitary sewer manholes, one pump station and valve vault, one mag meter vault, demolition and installation of a new screening system, and related appurtenances.*

ARTICLE 3 – ENGINEER

3.01 The part of the Project that pertains to the Work has been designed by Eclipse Engineers, PLLC.
3.02 The Owner has retained Eclipse Engineers, PLLC to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Contract Times: Days*

A. The Work will be substantially completed within **(270) two hundred seventy days** after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within **(270) two hundred seventy days** after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed

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

1. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$ 300 for each day that expires after such time until the Work is completed and ready for final payment.

4.04 *Special Damages*

- A. In addition to the amount provided for liquidated damages, Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.
- B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.

ARTICLE 5 – CONTRACT PRICE

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

- A. For all Work other than Unit Price Work, a lump sum of: \$_____.

All specific cash allowances are included in the above price in accordance with Paragraph 13.02 of the General Conditions.

- B. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item):

Unit Price Work					
Item No.	Description	Unit	Estimated Quantity	Unit Price	Extended Price
1	General Conditions	LS	1		
2	8-inch PVC SDR 35 Gravity Sewer	LF	180		
3	12-inch PVC SDR 35 Gravity Sewer	LF	11		
4	8-inch PVC SDR 21 Force Main	LF	6,375		

Unit Price Work					
Item No.	Description	Unit	Estimated Quantity	Unit Price	Extended Price
5	16-inch Steel Casing Pipe – Directional Bore	LF	240		
6	2-inch Combination Air Release Valve Assembly	EA	3		
7	4-foot Diameter Manhole	EA	3		
8	Connect to Manhole (G-1)	EA	1		
9	Connect to Existing 2-inch Force Main	LS	1		
10	Cut and Cap Existing Force Main	EA	1		
11	Removal of Existing Force Main	EA	2		
12	Removal of Existing Sanitary Sewer Piping	LS	1		
13	Pumps and Controls	LS	1		
14	Wetwell and Valve Vault	LS	1		
15	Mag Meter Vault	LS	1		
16	Emergency Generator Concrete Pad	LS	1		
17	Miscellaneous Electric	LS	1		
18	Chain-Link Fence with Gate	LF	140		
19	Gravel Entrance Including Fenced Area	LS	1		
20	Bituminous Pavement Replacement	SY	240		
21	Demolition of Existing Screening System	LS	1		
22	Purchase and Installation of New Screening System	LS	1		
Total of all Extended Prices for Unit Price Work (subject to final adjustment based on actual quantities)					\$

The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

- C. Total of Lump Sum Amount and Unit Price Work (subject to final Unit Price adjustment) \$_____.
- D. For all Work, at the prices stated in Contractor’s Bid, attached hereto as an exhibit.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

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

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the _____ day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.
1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract
 - a. 90 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and
 - b. 90 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 100 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

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

ARTICLE 7 – INTEREST

7.01 All amounts not paid when due shall bear interest at the rate of _____ percent per annum.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

- 8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:
- A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
 - B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

- D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
- E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.
- F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 Contents

- A. The Contract Documents consist of the following:
 - 1. This Agreement (pages 1 to 8, inclusive).
 - 2. Performance bond (pages 1 to 3, inclusive).
 - 3. Payment bond (pages 1 to 3, inclusive).
 - 4. Other bonds.
 - a. (pages to , inclusive).
 - 5. General Conditions (pages 1 to 70, inclusive).
 - 6. Supplementary Conditions (pages 1 to 31, inclusive).
 - 7. Specifications as listed in the table of contents of the Project Manual.

8. Drawings (not attached but incorporated by reference) consisting of 27 sheets with each sheet bearing the following general title: Contract No. 37 – Fibrotex Sanitary Sewer Pump Station and Force Main.
 9. Addenda (numbers 1 to , inclusive).
 10. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages 1 to , inclusive).
 11. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 Terms

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

10.02 Assignment of Contract

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

10.03 Successors and Assigns

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

10.04 Severability

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

and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Contractor's Certifications*

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

10.06 *Other Provisions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are based on EJCDC® C-700, Standard General Conditions for the Construction Contract, published by the Engineers Joint Contract Documents Committee®, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

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

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

OWNER:

CONTRACTOR:

McCreary County Water District _____

By: Stephen Whitaker _____

By: _____

Title: Superintendent _____

Title: _____

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

456 North Hwy 27 _____

Whitley City, Kentucky 42653 _____

(606) 376-2540 _____

License No.: _____

(where applicable)

NOTICE TO PROCEED

TO: _____

DATE: _____

PROJECT NAME: _____

You are hereby notified to commence WORK in accordance with the Agreement dated _____, 20____, on or before _____, 20__. In accordance with the Agreement, the date of substantial completion is _____, and the date of readiness for final payment is _____, 20__. **OR** , and the number of days needed to achieve readiness for final payment is _____.

Before starting work at the site, Contractor must comply with the following:
{*Note any access limitations, security procedures, or other restrictions*}

Owner: _____

By: _____

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PRO-

CEED is hereby acknowledged on behalf of

(Company Name)

This, the _____ day of 20____

By _____

Title _____

PERFORMANCE BOND

CONTRACTOR *(name and address):*

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

OWNER *(name and address):*

McCreary County Water District
456 North Hwy 27
Whitley City, KY 42653

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location):*

BOND

Bond Number:

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

Amount:

Modifications to this Bond Form: None See Paragraph 16

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

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature

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

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

14. Definitions

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

for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

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

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

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

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

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

16. Modifications to this Bond are as follows:

PAYMENT BOND

CONTRACTOR *(name and address)*:

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

OWNER *(name and address)*:

McCreary County Water District
456 North Hwy 27
Whitley City, KY 42653

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location)*:

BOND

Bond Number:

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

Amount:

Modifications to this Bond Form: None See Paragraph 18

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

CONTRACTOR AS PRINCIPAL

SURETY

_____ *(seal)*

Contractor's Name and Corporate Seal

_____ *(seal)*

Surety's Name and Corporate Seal

By: _____

Signature

By: _____

Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____

Signature

Attest: _____

Signature

Title

Title

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

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

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:	Owner's Contract No.:
Contractor:	Contractor's Project No.:
Engineer:	Engineer's Project No.:
Project:	Contract Name:

This [preliminary] [final] Certificate of Substantial Completion applies to:

All Work The following specified portions of the Work:

Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work shall be as provided in the Contract, except as amended as follows: *[Note: Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.]*

Amendments to Owner's responsibilities: None
 As follows

Amendments to Contractor's responsibilities: None
 As follows:

The following documents are attached to and made a part of this Certificate: *[punch list; others]*

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract.

EXECUTED BY ENGINEER:		RECEIVED:		RECEIVED:	
By: _____	By: _____	By: _____	By: _____	By: _____	By: _____
(Authorized signature)	Owner (Authorized Signature)	Owner (Authorized Signature)	Contractor (Authorized Signature)	Contractor (Authorized Signature)	Contractor (Authorized Signature)
Title: _____	Title: _____	Title: _____	Title: _____	Title: _____	Title: _____
Date: _____	Date: _____	Date: _____	Date: _____	Date: _____	Date: _____

**STANDARD GENERAL CONDITIONS OF THE
CONSTRUCTION CONTRACT**

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

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

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

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

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

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

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

1.02 Terminology

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

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

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

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

2.02 *Copies of Documents*

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

2.03 *Before Starting Construction*

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

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

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

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

2.05 *Initial Acceptance of Schedules*

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

2.06 *Electronic Transmittals*

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

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

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

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

3.02 *Reference Standards*

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

3.03 *Reporting and Resolving Discrepancies*

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

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

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

B. *Resolving Discrepancies:*

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

3.04 *Requirements of the Contract Documents*

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

3.05 *Reuse of Documents*

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

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

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

4.02 *Starting the Work*

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

4.03 *Reference Points*

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

4.04 *Progress Schedule*

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

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

4.05 *Delays in Contractor's Progress*

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

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

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

5.01 *Availability of Lands*

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

5.02 *Use of Site and Other Areas*

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

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

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

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

5.03 *Subsurface and Physical Conditions*

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

5.04 *Differing Subsurface or Physical Conditions*

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

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

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

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

5.05 *Underground Facilities*

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

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

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

5.06 *Hazardous Environmental Conditions at Site*

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

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

ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

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

6.02 *Insurance—General Provisions*

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

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

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

6.03 *Contractor's Insurance*

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

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

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

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

6.04 *Owner's Liability Insurance*

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

6.05 *Property Insurance*

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

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

6.06 *Waiver of Rights*

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

6.07 *Receipt and Application of Property Insurance Proceeds*

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

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

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

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 Supervision and Superintendence

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

7.02 Labor; Working Hours

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

7.03 Services, Materials, and Equipment

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

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

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

7.04 "Or Equals"

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

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

7.05 *Substitutes*

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

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

7.06 *Concerning Subcontractors, Suppliers, and Others*

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

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

O. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

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

7.08 *Permits*

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

7.09 *Taxes*

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

7.10 *Laws and Regulations*

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

7.11 *Record Documents*

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

7.12 *Safety and Protection*

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

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

7.13 *Safety Representative*

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

7.14 *Hazard Communication Programs*

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

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

7.15 *Emergencies*

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

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements:*

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

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

1. *Shop Drawings:*

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

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

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

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

E. *Resubmittal Procedures:*

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

7.17 *Contractor's General Warranty and Guarantee*

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

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

7.18 *Indemnification*

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

7.19 *Delegation of Professional Design Services*

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

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

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

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

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

8.02 *Coordination*

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

8.03 *Legal Relationships*

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

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

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

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

9.02 *Replacement of Engineer*

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

9.03 *Furnish Data*

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

9.04 *Pay When Due*

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

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

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

9.06 *Insurance*

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

9.07 *Change Orders*

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

9.08 *Inspections, Tests, and Approvals*

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

9.09 *Limitations on Owner's Responsibilities*

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

9.10 *Undisclosed Hazardous Environmental Condition*

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

9.11 *Evidence of Financial Arrangements*

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

9.12 *Safety Programs*

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

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

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

10.02 *Visits to Site*

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

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

10.03 *Project Representative*

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

10.04 *Rejecting Defective Work*

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

10.05 *Shop Drawings, Change Orders and Payments*

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

10.06 *Determinations for Unit Price Work*

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

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

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

10.08 *Limitations on Engineer's Authority and Responsibilities*

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

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

10.09 *Compliance with Safety Program*

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

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

11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
 - 1. *Change Orders:*
 - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
 - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
 - 2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an

adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

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

11.02 *Owner-Authorized Changes in the Work*

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

11.03 *Unauthorized Changes in the Work*

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

11.04 *Change of Contract Price*

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

the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).

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

11.05 *Change of Contract Times*

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

11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under

the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

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

11.07 Execution of Change Orders

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
 4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *Notification to Surety*

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

ARTICLE 12 – CLAIMS

12.01 *Claims*

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

submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

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

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

13.01 *Cost of the Work*

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

thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
 - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes

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

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

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

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

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

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

13.02 Allowances

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

- B. *Cash Allowances*: Contractor agrees that:
 - 1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 - 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

13.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
 - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 - 3. by manufacturers of equipment furnished under the Contract Documents;
 - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 - 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to

cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will

include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

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

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments:*
1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
 2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
 3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.
- C. *Review of Applications:*
1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
 2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
 4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
 5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
 6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

- e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due:*

- 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner:*

- 1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. the Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. the Contract Price has been reduced by Change Orders;
 - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - l. there are other items entitling Owner to a set off against the amount recommended.
- 2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount

remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.
 - 2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

- A. *Application for Payment:*
 - 1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of

inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all disputes that Contractor believes are unsettled; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.

D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation,

including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such other adjacent areas;
 - 2. correct such defective Work;
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses,

and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for

expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this Article:
 - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and
 - 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this Article, Owner or Contractor may:
 - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or
 - 2. agree with the other party to submit the dispute to another dispute resolution process; or
 - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
 - 1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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I. INTRODUCTION

A. General

The Engineers Joint Contract Documents Committee® (EJCDC®) has prepared and publishes standard contract forms for construction contracts, as well as bidding-related documents. The principal forms are listed in Table 1. EJCDC has also prepared other documents that may be useful in preparing construction contract documents. Some of the principal ones are listed in Table 2. For the most recent editions of these forms, guides, and other documents, please refer to EJCDC's website at www.ejcdc.org.

Table 1 Principal EJCDC Standard Forms and Related Guides for Construction Contracts		
Name	Number	Short Title/Abbreviation
Suggested Instructions to Bidders for Construction Contracts	C-200	Instructions/I
Bid Form for Construction Contracts	C-410	Bid Form/BF
Agreement between Owner and Contractor for Construction Contract (Stipulated Price)	C-520	Stipulated Price Agreement/A
Agreement between Owner and Contractor for Construction Contract (Cost-Plus)	C-525	Cost-Plus Agreement/A
Standard General Conditions of the Construction Contract	C-700	General Conditions/GC
Guide to the Preparation of Supplementary Conditions	C-800	Supplementary Conditions/SC

Table 2 Principal EJCDC Documents Relating to Preparation of Construction Documents		
Name	Number	Short Title
Commentary on the 2013 EJCDC Construction Documents	C-001	Commentary
Uniform Location of Subject Matter	N-122	Locator Guide
Bidding Procedures and Construction Contract Documents	C-050	Bidding Procedures
Engineer's Letter to Owner Requesting Instructions Concerning Bonds and Insurance	C-051	Engineer's Letter to Owner Concerning Bonds and Insurance
Owner's Instructions to Engineer Concerning Bonds and Insurance	C-052	Owner's Instructions Concerning Bonds and Insurance

B. *Mandatory Supplementary Conditions*

Several provisions of the General Conditions expressly indicate that essential Project-specific information will be set out in a corresponding Supplementary Condition. For example, Paragraph 6.03.1 of the General Conditions indicates that required insurance coverage limits will be specified in the Supplementary Conditions. Every EJCDC-based construction contract should include, at a minimum, the following Supplementary Conditions:

1. One of the suggested Paragraphs SC-5.03, concerning reports and drawings of conditions at the Site, and any Technical Data in the reports and drawings on whose accuracy the Contractor may rely;
2. One of the suggested Paragraphs SC-5.06, concerning reports and drawings regarding Hazardous Environmental Conditions at the Site, and any Technical Data in those reports and drawings on whose accuracy the Contractor may rely;
3. Those portions of SC-6.03 identifying specific insurance coverage requirements; and
4. One of the two alternatives presented in SC-10.03 (either the Engineer will provide Resident Project Representative services on the Project, with specific authority and responsibilities, or Engineer will not provide Resident Project Representative services).

Other suggested Supplementary Conditions are mandatory under specific circumstances: for example, on projects in which the Contractor will be responsible for compliance with Owner's safety program, SC-7.12 would be mandatory.

C. *Relationship of Supplementary Conditions to Other Contract Documents*

Supplementary Conditions are modifications to the General Conditions—additions, deletions, changes. This is as the term is defined by EJCDC and the Construction Specification Institute (CSI). Other organizations use their supplementary conditions to modify a broader range of contract documents, such as agreement forms and standard specifications.

This Guide and the other Construction-related documents prepared and issued by EJCDC assume use of the CSI MasterFormat™ concept, which provides an organizational format for location of all documentary information for a construction project: Bidding Requirements, contract forms (Agreement, Bonds, and certificates), General Conditions, Supplementary Conditions, and Specifications. Under the CSI MasterFormat™, the last grouping, Specifications, is divided into 49 Divisions, the first of which, Division 01, is entitled “General Requirements.”

The standard fundamental provisions affecting the rights and duties of the parties appear in the General Conditions. Language to modify the fundamental relationships between the parties, supplement the framework set forth in the General Conditions, or change the language of the General Conditions, should appear in the Supplementary Conditions. Examples of this are a change in Contractor's Site responsibilities, and a supplemental clause specifying the details of insurance coverages and limits for the Project.

Price terms, monetary terms such as liquidated damages clauses, and completion dates should all be set forth in the Agreement (EJCDC® C-520—Stipulated Sum or C-525—Cost-Plus), and should not be included in the Supplementary Conditions.

The substance of the General Requirements (Division 01 of the Specifications) falls generally into three categories: (1) administrative requirements, such as summary of work, allowances, coordination, alternatives (materials, equipment, or price), product options, project meetings, and project close-out; (2) work-related provisions, such as temporary facilities, field testing, and

start-up; and (3) general provisions applicable to more than one section in Divisions 02 through 49.

D. *Arrangement of Subject Matter*

This Guide is arranged in the same order as the 2013 edition of the General Conditions, and the paragraphs herein bear comparable addresses to those of the General Conditions but with the prefix “SC.” A discussion of the purpose and function of these suggested Supplementary Conditions is included in EJCDC® C-001, Commentary on the 2013 EJCDC Construction Documents.

E. *Use of this Guide*

The text presented in bold type in the remainder of this Guide is suggested language for some commonly used Supplementary Conditions. The drafter should bear in mind that most contractual provisions have important legal consequences. Consultation with legal counsel before finalization of any amendment or supplement is recommended.

Many sets of supplementary conditions examined by EJCDC contain typical or “boilerplate” provisions that have accumulated like moss over the years, appear to have no practical significance for the particular project, and may produce unintended and surprising legal consequences. Such provisions are usually there because someone saw similar terms in other contract documents and it “sounded good.” Selecting contract terms in that manner is not recommended. Provisions of the Supplementary Conditions should address a particular point in the General Conditions or cover a particular topic. The Supplementary Conditions should not be a repository for general language of vague meaning for which another location cannot be readily found.

This Guide assumes a general familiarity with the other Construction-related (C-series) documents prepared by EJCDC and, when drafting language, specific attention to them is encouraged. Standard documents or prescribed forms issued by governmental bodies and other owners may differ materially from the documents of EJCDC so that careful correlation of any amending or supplementing language is essential. The practice of stating that any provision in one document that is inconsistent with another is superseded, or that one document always takes precedence over another in the event of a conflict in language or requirements, is sometimes necessary, but generally discouraged. The resulting legal consequences of such provisions are frequently difficult to decipher and may be very different from what was anticipated.

The EJCDC General Conditions use carefully chosen language and set forth the basic responsibilities of the parties with respect to fundamental matters and legal consequences. Their provisions should be altered only where mandated by the specific requirements of a given project and the consequences of any modification are thoroughly understood.

Caution should be exercised when making any change in the standard documents. They have been carefully prepared, terms are used uniformly throughout and are consistent with the terms in other EJCDC documents. Their provisions have been carefully integrated, and are dependent on one another. A change in one document may necessitate a change in another, and a change in one paragraph may necessitate a change in other language of the same document. No change should be made until its full effect on the rest of the General Conditions and other Contract Documents has been considered.

Users must follow the instructions and restrictions regarding the use of this document that are set out in the License Agreement that accompanied the document at the time of purchase or

acquisition. To prepare this document for use on a specific project, after reviewing all instructions and explanatory text and notes, (1) remove the cover pages, this Introduction, Part II (Standard Prefatory Language and Traditional Format for Supplementary Conditions) and Part III (Alternative Format for Supplementary Conditions) (2) fill in Project-specific information and make revisions to the document, following the guidance in the explanatory text and notes, and the advice of legal counsel, and (3) delete the explanatory text and notes.

Lastly, remember that an engineer is neither qualified nor licensed to give advice to others on the legal consequences of contracts. All of the Contract Documents have important legal consequences. Owners should be encouraged to seek the advice of an attorney before accepting any modification of the printed forms, before the documents are sent out for bidding, and most assuredly before signing any agreement.

II. STANDARD PREFATORY LANGUAGE AND TRADITIONAL FORMAT FOR SUPPLEMENTARY CONDITIONS

Suggested format and wording conventions for Supplementary Conditions appear below.

A. *Table of Contents*

The inclusion of a table of contents will benefit the user of the Supplementary Conditions, especially if additional articles (beyond the 18 Articles of the General Conditions) are added for the purpose of including mandated or other provisions.

B. *Pagination*

If CSI's MasterFormat™, 2012 Edition, is being used for the Project Manual, consult MasterFormat™ for the appropriate section number and number the pages accordingly.

C. *Format for Complete Paragraph Change*

When completely superseding a paragraph of the General Conditions, the following language may be used:

SC 5.09.B Delete Paragraph 5.09.B in its entirety and insert the following in its place:

D. *Format for Change within a Paragraph*

When changing language within a paragraph of the General Conditions, the following language may be used:

SC 6.21.A Amend the second sentence of Paragraph 6.21.A [to read as follows] [or] [by striking out the following words]:

E. *Format for Additional Language*

When adding language to an existing paragraph of the General Conditions, the idea may be expressed as follows:

SC 9.03 Add the following language at the end of the second sentence of Paragraph 9.15:

F. *Format for Additional Paragraph*

If it is desired to add a new paragraph to the General Conditions, the thought may be expressed as follows:

SC 8.06 Add the following new paragraph immediately after Paragraph 8.06.B:

III. ALTERNATIVE FORMAT FOR SUPPLEMENTARY CONDITIONS

Electronic files are commonly used for transmittal and storage of the text of standard documents. In fact, EJCDC no longer publishes printed documents. Because it is easy to modify documents electronically, it is increasingly common for practitioners to integrate the text of desired Supplementary Conditions into the text of the General Conditions. Most word processing programs have line-out and underlining features that accurately show deletions, changes, and additions. Users of EJCDC's General Conditions are contractually obligated, through the terms of the purchase of the document, to clearly delineate all changes made to the standard text of the General Conditions to other parties in interest (for example, if Owner makes changes, Owner should show these changes to prospective bidders). It would be misleading to users to imply or represent that the General Conditions are EJCDC's General Conditions if changes are not properly and clearly identified during the contract formation process.

IV. SUGGESTED SUPPLEMENTARY CONDITIONS

A. *Caption and Introductory Statements*

The following is a suggestion for use at the beginning of the Supplementary Conditions for a specific project:

Supplementary Conditions

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.

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

SC-1.01 Defined Terms

A. If the Contract will include a Geotechnical Baseline Report (see Article 5 below), include the following definitions:

SC-1.01. Add to the list of definitions in Paragraph 1.01.A by inserting the following as numbered items in their proper alphabetical positions:

Geotechnical Baseline Report (GBR) — The interpretive report prepared by or for Owner regarding subsurface conditions at the Site, and containing specific baseline geotechnical conditions that may be anticipated or relied upon for bidding and contract administration purposes, subject to the controlling provisions of the Contract, including the GBR's own terms. The GBR is a Contract Document.

Geotechnical Data Report (GDR) — The factual report that collects and presents data regarding actual subsurface conditions at or adjacent to the Site, including Technical Data and other geotechnical data, prepared by or for Owner in support of the Geotechnical Baseline Report. The GDR's content may include logs of borings, trenches, and other site investigations, recorded measurements of subsurface water levels, the results of field and laboratory testing, and descriptions of the investigative and testing programs. The GDR does not include an interpretation of the data. If opinions, or interpretive or speculative non-factual comments or statements appear in a document that is labeled a GDR, such opinions, comments, or statements are not operative parts of the GDR and do not have contractual standing. Subject to that exception, the GDR is a Contract Document.

ARTICLE 2 – PRELIMINARY MATTERS

SC-2.01 Delivery of Bonds and Evidence of Insurance

- A. Paragraph 2.01.B of the General Conditions requires that Contractor furnish certificates of insurance. Paragraph 6.02.C states that upon request by Owner or other named or additional insureds, Contractor must provide evidence of insurance such as copies of required policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Parallel provisions apply to Owner and the insurance that Owner is required to provide. Rather than relying on this two-step process (delivery of certificates of insurance at the outset; subsequent requests for additional evidence of insurance), some contract drafters may elect to require from the outset that copies of the insurance policies, rather than certificates of insurance, be delivered to the other party. If exchange of copies of insurance policies is required, the following should be used:

SC-2.01 Delete Paragraphs 2.01 B. and C. in their entirety and insert the following in their place:

- B. Evidence of Contractor's Insurance: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner copies of the policies of insurance (including all endorsements, and identification of applicable self-insured retentions and deductibles) required to be provided by Contractor in Article 6. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.**
- C. Evidence of Owner's Insurance: After receipt from Contractor of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor copies of the policies of insurance to be provided by Owner under Article 6 (if any). Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.**

SC-2.02 Copies of Documents

- A. If the number of printed or hard copies of the Drawings and Project Manual to be provided is different than four copies the following may be used:

SC-2.02.A. Amend the first sentence of Paragraph 2.02.A. to read as follows:

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

- B. On some projects it may be useful to produce conformed Contract Documents, in which the content of Addenda and negotiated changes are merged into the appropriate Specifications, Drawings, General Conditions, or other Contract Documents. This may be especially true on private construction projects where the terms and scope are negotiated and modified significantly after the initial release of proposed Contract Documents. Conformed documents may be considerably more convenient to use during the performance of the Work and the administration of the Contract.

EJCDC advises that if conformed documents are to be prepared and made available to Contractor, sufficient time and budget must be allocated to ensure the quality and full coordination of the conformed documents, and Owner and Engineer must recognize that Contractor, Subcontractors,

and Suppliers will likely rely on the conformed version of the Contract Documents rather than the source components. If conformed documents are prepared without the level of commitment necessary to allow them to be accorded the full status of "Contract Documents," and are merely for reference or convenience, they should be accompanied by clear disclaimers of their content and a warning to consult the actual source Contract Documents.

A Supplementary Condition regarding conformed documents is necessary only if the Owner intends to provide the Contractor with conformed documents that will serve as binding Contract Documents. The following may be used for that purpose:

SC-2.02 Delete Paragraph 2.02.A in its entirety and insert the following new paragraph in its place:

A. Owner shall furnish to Contractor [] copies of conformed Contract Documents incorporating and integrating all Addenda and any amendments negotiated prior to the Effective Date of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies of the conformed Contract Documents will be furnished upon request at the cost of reproduction.

C. Note: If Owner is not furnishing PDF or other electronic files of the Contract Documents, then draft (1) a Supplementary Condition that deletes the reference in 2.02.A of the General Conditions to providing the PDF files, and (2) a Supplementary Condition that deletes Paragraph 3.01.C in its entirety.

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

SC-5.03 Subsurface and Physical Conditions

A. **This is a mandatory Supplementary Condition.** Paragraph 5.03, Subsurface and Physical Conditions, of the General Conditions requires the identification of all known documents regarding subsurface and physical conditions at or adjacent to the Site (this requirement is broader than merely requiring that Contractor be given access to subsurface reports prepared for the current Project). It also requires the identification of Technical Data (upon whose accuracy Contractor may rely) contained in such documents. Use the first version of SC-5.03, presented immediately below, for the purpose of identifying the known Site condition documents. If no such documents are known, then use the second version of SC-5.03, below. Also note that if the known documents include either a geotechnical report or environmental report prepared for the Project, or both, and the Supplementary Conditions neglect to expressly identify the Technical Data, upon whose accuracy Contractor may rely, that is contained in such reports, then the default definition of Technical Data in Paragraph 1.01 of the General Conditions will apply.

Note that if Owner elects to furnish a Geotechnical Baseline Report (GBR), use the alternate SC/GBR-5.03 and SC/GBR 5.04 located in the next section of this document, rather than one of the SC-5.03 versions immediately following. If a GBR is used, it remains important to disclose known reports and tests regarding subsurface conditions; a place for doing so is provided in SC/GBR-5.03. If some Site conditions are outside the scope of the Geotechnical Baseline Report it will continue to be necessary to identify reliable Technical Data contained in such reports and drawings; however, if the Geotechnical Baseline Report or a related Geotechnical Data Report already establish the data that is worthy of reliance, it will not be necessary to make a redundant identification in SC/GBR 5.03.

SC-5.03 Add the following new paragraphs immediately after Paragraph 5.03.B:

C. The following reports of explorations and tests of subsurface conditions at or adjacent to the Site are known to Owner:

- 1. Report dated** *[May 21, 2013, prepared by Aye and Bea, Consulting Engineers, Philadelphia, Pa., entitled: "Results of Investigation of Subsoil Conditions and Professional Recommendations for Foundations of Iron Foundry at South and Front Streets, Pembrig, NJ", consisting of 42 pages.]* **The Technical Data contained in such report upon whose accuracy Contractor may rely are** *[here indicate any such Technical Data, or state "none."]* **[or] [those indicated in the definition of Technical Data in the General Conditions.]**
- 2. Report dated** *[May 2, 2000, prepared by Ecks, Wye and Tsze, Inc., Baltimore, Md., entitled: "Tests of Water Quality in Mixer River at Pembrig, NJ", consisting of 26 pages.]* **The Technical Data contained in such report upon whose accuracy Contractor may rely are** *[here indicate any such Technical Data, or state "none."]* **[or] [as indicated in the definition of Technical Data in the General Conditions.]**

D. The following drawings of physical conditions relating to existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities) are known to Owner:

- 1. Drawings dated** *[March 2, 2000, of Route 24A Overpass Abutment, prepared by Dea & Associates, Inc., Wilmington, Del., entitled: "Record Drawings: Route No. 24A Overpass Abutment", consisting of 12 sheets numbered 001 to 012, inclusive.]*

[Use one of the following two subparagraphs:]

- a. All of the information in such drawings constitutes Technical Data on whose accuracy Contractor may rely, except for** **appearing on Drawing No. and** **appearing on Drawing No. .**

[or]

- a. None of the contents of such drawings is Technical Data on whose accuracy Contractor may rely.**

E. Contractor may examine copies of reports and drawings identified in SC 5.03.C and SC 5.03.D that were not included with the Bidding Documents at *[insert location]* during regular business hours, or may request copies from Engineer.

If there are no known Site-related reports or drawings, use the following version of SC-5.03:

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.**
- B. Geotechnical Baseline Reports:** Some project owners use a Geotechnical Baseline Report (GBR) for projects (or portions of a project) in which the subsurface conditions will play a significant role. Providing a GBR may result in bids with lower contingencies for subsurface conditions, and simplify

the application of the differing site conditions provisions in Article 5 of the General Conditions. Commentary on Geotechnical Baseline Reports is presented in EJCDC® C-001. See also Geotechnical Baseline Reports for Construction—Suggested Guidelines, by Randall J. Essex, P.E., ASCE 2007. In many cases it may be advantageous for Owner, Engineer, or the geotechnical engineer to engage a consultant with GBR experience to assist in preparation of the GBR and related documents.

On projects in which a Geotechnical Baseline Report is used, it is typical to also assemble and provide a Geotechnical Data Report (GDR), as a separate, single source of factual geotechnical information regarding the Site. The content of the GDR is in essence what the EJCDC documents define as “Technical Data”—reliable factual information, such as boring logs and laboratory test results. (See the definition of Technical Data in Article 1 of the General Conditions, and the definition of a GDR in Article 1 of these Supplementary Conditions). Some Owners may elect to issue a GBR without compiling a GDR, but regardless of the format it is essential to identify and make all geotechnical data available. Note that a typical general purpose geotechnical report, usually prepared primarily to assist in the design of the project, often contains not only factual data but also opinions, interpretations, and even speculation regarding the Site’s subsurface conditions. **Such a geotechnical report is not suitable to be adopted or identified as a GDR.**

Although it is preferable that a GBR be comprehensive with respect to subsurface conditions, in some cases a GBR will establish baselines for a portion of a project, but will not address all subsurface issues. For example, the GBR may establish baseline subsurface conditions along the route of a pipeline, but be silent with respect to conditions underlying an associated pump building. Also, in some cases a project will involve both subsurface construction as well as building modifications or other tasks unrelated to geotechnical investigations, analysis, or interpretations. The SC/GBR provisions that follow retain certain differing site condition provisions of the General Conditions, in part because these may be needed for situations that are outside the scope of the GBR. As noted previously, these SC/GBR provisions contain locations for (1) identifying known reports and drawings regarding the subsurface conditions (a mandatory obligation), and (2) identifying Technical Data upon whose accuracy Contractor may rely (necessary in some but not all GBR projects, depending on the scope of the GBR and GDR documents).

If a GBR is used, then include the following GBR Supplementary Conditions, and do not use either of the Paragraphs SC-5.03 above:

SC/GBR-5.03 and 5.04. Delete Paragraphs 5.03 and 5.04 of the General Conditions in their entireties and replace with the following provisions:

SC/GBR-5.03 Subsurface and Physical Conditions

A. Reports and Drawings: The Supplementary Conditions hereby identify:

- 1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site (other than any Geotechnical Data Report or Geotechnical Baseline Report), and Technical Data contained in such reports. Such reports are as follows:**
 - a. Report dated [May 21, 2013, prepared by Aye and Bea, Consulting Engineers, Philadelphia, Pa., entitled: “Results of Investigation of Subsoil Conditions and Professional Recommendations for Foundations of Iron Foundry at South and Front Streets, Pembrig, NJ”, consisting of 42 pages.] The Technical Data contained in such report upon whose accuracy Contractor may rely are [here indicate any such Technical Data**

or state "none." [or] [those indicated in the definition of Technical Data in the General Conditions.]

- b. **Report dated** [May 2, 2000, prepared by Ecks, Wye and Tsze, Inc., Baltimore, Md., entitled: "Tests of Water Quality in Mixer River at Pembrig, NJ", consisting of 26 pages.] **The Technical Data contained in such report upon whose accuracy Contractor may rely are** [here indicate any such Technical Data or state "none." [or] [as indicated in the definition of Technical Data in the General Conditions.]
2. **those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities), and Technical Data contained in such drawings. Such drawings are as follows:**
 - a. **Drawings dated** [March 2, 2000, of Route 24A Overpass Abutment, prepared by Dea & Associates, Inc., Wilmington, Del., entitled: "Record Drawings: Route No. 24A Overpass Abutment", consisting of 12 sheets numbered 001 to 012, inclusive.]

[Use one of the following two subparagraphs:]

(1) **All of the information in such drawings constitutes Technical Data on whose accuracy Contractor may rely, except for** [redacted] **appearing on Drawing No.** [redacted] **and** [redacted] **appearing on Drawing No.** [redacted].

[or]

(2) **None of the contents of such drawings is Technical Data on whose accuracy Contractor may rely.**

3. **Contractor may examine copies of reports and drawings identified immediately above that were not included with the Bidding Documents at** [redacted] *[insert location]* **during regular business hours, or may request copies from Engineer, at the cost of reproduction.**

B. Reliance by Contractor on Technical Data Authorized:

Contractor may rely upon the accuracy of the Technical Data contained in such reports and drawings, but such reports and drawings are not Contract Documents. 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. **Geotechnical Baseline Report:**
1. This Contract contains a **Geotechnical Baseline Report (“GBR”)**, identified as follows: *[Geotechnical Baseline Report for Northwest Interceptor, dated February 12, 2013, prepared by ABC Geotechnical Engineers, Inc., Sacramento, California]*. This Contract also contains a **Geotechnical Data Report (GDR)**, identified as follows: *[Geotechnical Data Report for Northwest Interceptor, dated June 15, 2012, prepared by ABC Geotechnical Engineers, Inc., Sacramento, California]*
 2. The GBR and GDR are incorporated as Contract Documents. The GBR and GDR are to be used in conjunction with other Contract Documents, including the Drawings and Specifications. If there is a conflict between the terms of the GBR and the GDR, the GBR’s terms shall prevail.
 3. The GBR describes certain select subsurface conditions that are anticipated to be encountered by Contractor during construction in specified locations (referred to here in the Supplementary Conditions as “Baseline Conditions”). These may include ground, geological, groundwater, and other subsurface geotechnical conditions, and baselines of anticipated Underground Facilities or subsurface structures.
 4. The Baseline Conditions shall be used to assist in the administration of the Contract’s differing site conditions clause at locations where subsurface conditions have been baselined. If a condition is baselined in the GBR, then only the pertinent Baseline Conditions shall be used to determine whether there is a differing site condition; and no other indication of that condition in the Contract Documents or Technical Data, or of a condition that describes, quantifies, or measures a similar characteristic of the subsurface, shall be used for the differing site condition determination.
 5. The Baseline Conditions shall not be used to make differing site conditions determinations at locations that have not been baselined in the GBR, or at any location with respect to subsurface conditions that the Baseline Conditions do not address. If Underground Facilities or Hazardous Environmental Conditions are expressly addressed in the Baseline Conditions, then comparison to such Baseline Conditions shall be the primary means of determining (a) whether an Underground Facility was shown or indicated with reasonable accuracy, as provided in Paragraph 5.05 of the General Conditions, or (b) whether a Hazardous Environmental Condition was shown or indicated in the Contract Documents as indicated in Paragraph 5.06.H of the General Conditions. As indicated in Paragraph SC-5.04 below, the GDR shall be the primary resource for differing site conditions determinations in cases in which the GBR is inapplicable.
 6. The descriptions of subsurface conditions provided in the GBR are based on geotechnical investigations, laboratory tests, interpretation, interpolation, extrapolation, and analyses. Neither Owner, Engineer, nor any geotechnical or other consultant warrants or guarantees that actual subsurface

conditions will be as described in the GBR, nor is the GBR intended to warrant or guarantee the use of specific means or methods of construction.

7. The behavior of the ground during construction depends substantially upon the Contractor's selected means, methods, techniques, sequences, and procedures of construction. If ground behavior conditions are baselined in the GBR, they are based on stated assumptions regarding construction means and methods.
8. The GBR shall not reduce or relieve Contractor of its responsibility for the planning, selection, and implementation of safety precautions and programs incident to Contractor's means, methods, techniques, sequences, and procedures of construction, or to the Work.

SC/GBR-5.04 Differing Subsurface or Physical Conditions

A. Notice: If Contractor believes that any subsurface condition that is uncovered or revealed at the Site:

1. differs materially from conditions shown or indicated in the GBR; or
2. differs materially from conditions shown or indicated in the GDR, to the extent the GBR is inapplicable; or
3. differs materially from conditions shown or indicated in Contract Documents other than the GBR or GDR, to the extent the GBR and GDR are inapplicable; or
4. to the extent the GBR and GDR are inapplicable, 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
5. to the extent the GBR and GDR are inapplicable, is of such a nature as to require a change in the Drawings or Specifications; or
6. to the extent the GBR and GDR are inapplicable, 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 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 SC/GBR 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption or continuation 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 or continuation 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 SC/GBR 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 of the General Conditions; 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 SC/GBR 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.

SC-5.06 Hazardous Environmental Conditions

- A. **This is a mandatory Supplementary Condition.** Paragraph 5.06 of the General Conditions contemplates that Owner identify all known documents regarding Hazardous Environmental Conditions (HEC) that have been identified at or adjacent to the Site. It also requires the identification of Technical Data (upon whose accuracy Contractor may rely) contained in such documents. Use the first version of SC-5.06, presented immediately below, to identify the known HEC documents. If no HEC documents are known, then use the second version of SC-5.06, below. Also note that if the known documents include either a geotechnical report or environmental report prepared for the Project, or both, and the Supplementary Conditions neglect to expressly identify the Technical Data, upon whose accuracy Contractor may rely, that is contained in such reports, then the default definition of Technical Data in Paragraph 1.01 of the General Conditions will apply.

SC-5.06 Add the following subparagraphs 5.06.A.1 and 5.06.A.2:

1. **The following reports regarding Hazardous Environmental Conditions at the Site are known to Owner:**
 - a. **Report dated December 10, 2012, prepared by Eph Environmental Consultants, Princeton, N.J., entitled: "Results of Investigation of Conditions at Iron Foundry at South and Front Streets, Pembrig, NJ", consisting of 27 pages. The Technical Data contained in such report upon whose accuracy Contractor may rely are [here indicate any such Technical Data or state "none."]**
2. **The following drawings regarding Hazardous Environmental Conditions at the Site are known to Owner:**
 - a. **Drawings dated November 27, 2002, prepared by Eph Environmental Consultants, Princeton, N.J., entitled: "Iron Foundry Site Conditions", consisting of 5 sheets numbered [] to [], inclusive.**

[Use one of the following two subparagraphs:]

- 1) **All of the information in such drawings constitutes Technical Data on whose accuracy Contractor may rely, except for [] appearing on Drawing No. [] and [] appearing on Drawing No. [].**

[or]

- 1) **None of the contents of such drawings is Technical Data on whose accuracy Contractor may rely.**

B. Use the following SC-5.06 if there are no known HEC reports or drawings:

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-6.02 Insurance—General Provisions

A. Paragraph 6.02.B of the General Conditions requires that all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better, unless a different standard is indicated in the Supplementary Conditions. The A.M. Best ratings are based on the financial strength and size of the insurance company, with A-VII representing a commonly used standard. SC-6.02 is the location for noting any different standard, whether narrower or broader.

Note that in some states not all worker’s compensation insurers obtain A.M. Best ratings. The Owner may wish to include the following optional exception (modified to meet applicable provisions in the state) to the requirement in 6.02.B:

SC-6.02 Add the following paragraph immediately after Paragraph 6.02.B:

- 1. **Contractor may obtain worker’s compensation insurance from an insurance company that has not been rated by A.M. Best, provided that such company (a) is domiciled in the state in which the project is located, (b) is certified or authorized as a worker’s compensation insurance provider by the appropriate state agency, and (c) has been accepted to provide worker’s compensation insurance for similar projects by the state within the last 12 months.**

SC-6.03 Contractor’s Liability Insurance

A. **This is a mandatory Supplementary Condition**, because it is the location for specifying the limits of the coverages for the insurance required in Paragraph 6.03 of the General Conditions. The information set forth in this Supplementary Condition (and in all other contractual provisions regarding bonds and insurance) should be provided by Owner, either directly or through written instructions given to Engineer (see EJCDC® C-051, Engineer’s Letter to Owner Requesting Instructions Concerning Bonds and Insurance, and EJCDC® C-052, Owner’s Instructions to Engineer Concerning Bonds and 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: Statutory

Federal, if applicable (e.g., Longshoreman’s): Statutory

Jones Act coverage, if applicable:

Bodily injury by accident, each accident \$ _____
 Bodily injury by disease, aggregate \$ _____

Employer's Liability:

Bodily injury, each accident \$ _____
 Bodily injury by disease, each employee \$ _____
 Bodily injury/disease aggregate \$ _____

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: \$ _____

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 \$ _____
 Products - Completed Operations Aggregate \$ _____
 Personal and Advertising Injury \$ _____
 Each Occurrence (Bodily Injury and Property Damage) \$ _____

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

Bodily Injury:

Each person \$ _____
 Each accident \$ _____

Property Damage:

Each accident \$ _____

[or]

Combined Single Limit of \$ _____

4. Excess or Umbrella Liability:

Per Occurrence \$ _____
 General Aggregate \$ _____

EJCDC® C-800, Guide to the Preparation of Supplementary Conditions.

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[See Paragraph 6.03.E of the General Conditions.]

[If Owner revises the standard terms by deleting the requirement that Contractor provide Excess or Umbrella liability insurance, then Owner should consider requiring (in SC-6.03.K.2) that "The aggregate limits under SC-6.03.K.2 (Commercial General Liability) be maintained fully available for this Contract by obtaining and maintaining a Designated Construction Project General Aggregate Limit endorsement, or equivalent."]

5. Contractor's Pollution Liability:

Each Occurrence \$ _____

General Aggregate \$ _____

If box is checked, Contractor is not required to provide Contractor's Pollution Liability insurance under this Contract

[See Paragraph 6.03.F of the General Conditions.]

[On some projects, the Owner may conclude that it is not cost-effective to require the Contractor to carry Contractor's Pollution Liability insurance, based on the type of work to be performed or knowledge of conditions at the Site. In such cases, check the box above and either delete the "Each Occurrence" and "General Aggregate" line items, or indicate "N.A." or "Not applicable" in the blanks.]

6. Additional Insureds: In addition to Owner and Engineer, include as additional insureds the following: *[Here list by name (not category, role, or classification) other persons or entities to be included on the commercial general liability, automobile liability, umbrella or excess, and pollution liability policies as additional insureds.]*

7. Contractor's Professional Liability:

Each Claim \$ _____

Annual Aggregate \$ _____

[See Paragraph 6.03.H of the General Conditions.]

[Contractor's pollution liability and contractor's professional liability policies are sometimes sold as a hybrid or combined policy. If after receiving the advice of its risk managers the Owner concludes that it is an acceptable alternative for Contractor to provide such a combination policy, this should be stated here, together with the required policy limits for a combination policy.]

8. [Here list additional types and amounts of insurance that may be required by Owner.]

SC-6.05 Property Insurance

- A. **Builder’s Risk Deductible:** Paragraph 6.05.A of the General Conditions requires builder’s risk insurance on a completed value basis, subject to such deductible amounts as are provided by the Supplementary Conditions. In many cases, the drafter of the Supplementary Conditions will choose not to specify any deductibles, leaving establishment of the deductible amounts to the discretion of the purchasing party, which is responsible for payment of the deductibles. Even when a deductible is stipulated, it is typically a maximum amount; the purchaser may choose to purchase a policy with a lower deductible. Note that it is common for builder’s risk policies to feature several different deductibles, typically including a primary deductible and specific deductibles applicable to specific types of loss. The following Supplementary Condition provides a means of identifying a primary deductible; other specific deductibles may also be added.

If a primary deductible is to be stipulated, use the following to establish the maximum amount of the deductible:

SC-6.05. Add the following to the list of requirements in Paragraph 6.05.A, as a numbered item:

- 13. be subject to a deductible amount of no more than [\$] for direct physical loss in any one occurrence.**

- B. **Builder’s Risk—Supplemental Insureds:** Paragraph 6.05.A.1 of the General Conditions refers to other individuals or entities (in addition to the Owner, Contractor, and all Subcontractors) that are to be identified in the Supplementary Conditions as being entitled to protection as insureds under the builder’s risk insurance on the Work. In such cases use the following:

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:**

[Here list by name (not category, role, or classification) other persons or entities to be included on the builder’s risk policy as insureds.]

- C. **Builder’s Risk—Supplemental Requirements:** Paragraph 6.05.A of the General Conditions lists several items that are to be included in the builder’s risk insurance. Consider adding one or more of the following items to the list as appropriate to the specific project:

SC-6.05.A. Add the following to the list of items in Paragraph 6.05.A, as numbered items:

- 14. include for the benefit of Owner loss of profits and soft cost coverage including, without limitation, fixed expenses and debt service for a minimum of 12 months with a maximum deductible of 30 days, plus attorneys fees and engineering or other consultants’ fees, if not otherwise covered;**

- 16. include, in addition to the Contract Price amount, the value of the following equipment and materials to be installed by the Contractor but furnished by the Owner or third parties:**

a. [here list specific items of equipment and purchase value]

b. [here list items of material and purchase value]

- 17. include by express endorsement coverage of damage to Contractor’s equipment.**

- D. **Installation Floater:** An installation floater is insurance carried by the Contractor, covering the materials and equipment to be incorporated in the Work. It typically does not insure against losses

that occur after installation. In most cases, builder's risk insurance offers broader coverage and is the preferred risk management instrument. On some projects, an installation floater may be an acceptable alternative to a builder's risk policy. See EJCDC® C-001, Commentary on the 2013 EJCDC Construction Documents. (In other instances, Contractor may choose to purchase an installation floater to supplement property insurance provided by Owner.) If, after consultation with its risk managers, Owner elects to require purchase of an installation floater rather than a builder's risk policy, the following requirements may be included as a Supplementary Condition:

SC-6.05.A. Delete Paragraph 6.05.A of the General Conditions and substitute the following in its place:

Contractor shall provide and maintain installation floater insurance for property under the care, custody, or control of Contractor. The installation floater insurance shall be a broad form or "all risk" policy providing coverage for all materials, supplies, machinery, fixtures, and equipment that will be incorporated into the Work. Coverage under the Contractor's installation floater will include:

- 1. any loss to property while in transit,**
- 2. any loss at the Site, and**
- 3. any loss while in storage, both on-site and off-site.**

Coverage cannot be contingent on an external cause or risk, or limited to property for which the Contractor is legally liable. The Contractor will be solely responsible for any deductible carried under this coverage and claims on materials, supplies, machinery, fixture, and equipment that will be incorporated into the Work while in transit or in storage. This policy will include a waiver of subrogation applicable to Owner, Contractor, Engineer, all Subcontractors, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them.

- E. Builder's Risk—Owner Purchase: In the event that the Owner, rather than the Contractor, will purchase the Builder's Risk insurance, use the following SC-6.05.A:

SC 6.05.A. Delete the first sentence of Paragraph 6.05.A and insert the following sentence in its place:

Owner shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations).

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

SC-7.02 Labor; Working Hours

Paragraph 7.02.B of the General Conditions restricts Contractor to working during "regular hours" Monday through Friday, and no work is permitted on "legal holidays."

- A. To provide details regarding the meaning of the terms "regular hours" and "legal holidays," consider specifically defining them by adding the following:

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

- 1. Regular working hours will be [here insert schedule of regular working hours]**
- 2. Owner's legal holidays are [here insert list of legal holidays]**

B. To modify the days of the week that Contractor may work, use the following:

SC-7.02.B. Amend the first and second sentences of Paragraph 7.02.B to state “...all Work at the Site shall be performed during regular working hours, [] through []. Contractor will not perform Work on a [], [], or any legal holiday.”

C. If the Owner has no objections to the Contractor working multiple shifts, weekends, and legal holidays, use the following:

SC-7.02.B. Delete Paragraph 7.02 B. in its entirety, and insert the following:

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.

D. If Contractor is permitted to Work outside regular hours and on weekends and holidays, whether by a contractual provision or by Owner’s consent during the course of the Project, then it is good practice to address the issue of whether Owner may charge Contractor for engineering expenses associated with the non-regular schedule. Some Owners may prefer to absorb these costs to incentivize (or at least facilitate) an aggressive schedule and timely completion; and in many cases the net additional expense may be modest. Other Owners may prefer to establish and collect a charge for the engineering services. Add the following as SC-7.02.C, making a policy choice regarding responsibility in the beginning of the sentence:

SC-7.02.C. Add the following new paragraph immediately after Paragraph 7.02.B:

[Contractor] [Owner] [choose one and delete the other] shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer’s services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

E. If responsibility for costs in SC-7.02.C will be allocated to Contractor, Owner may wish to provide some specificity regarding the potential costs, through the addition of the following:

SC-7.02.C. Add the following new subparagraph immediately after Paragraph 7.02.C:

1. For purposes of administering the foregoing requirement, additional overtime costs are defined as [here insert parameters for compensated overtime hours]

SC-7.09 Taxes

A. If Owner qualifies for a state or local sales or use tax exemption in the purchase of certain materials and equipment, add the following Supplementary Condition, with any revisions necessary to meet the specific applicable exemption rules. (Note: If instructions to bidders or proposers are used, confirm that the provisions here are consistent with the corresponding provisions in such instructions. See Suggested Instructions to Bidders for Construction Contracts, EJCDC® C-200, Article 23.)

SC 7.09 Add a new paragraph immediately after Paragraph 7.09.A:

- B. Owner is exempt from payment of sales and compensating use taxes of the State of [insert name of state where Project is located] and of cities and counties thereof on all materials to be incorporated into the Work.**
- 1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.**
 - 2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.**

SC-7.12 Safety and Protection

- A. Some Owners have written safety programs with which construction contractors must comply. If such is the case, Paragraph 7.12.C of the General Conditions mandates that the safety program be identified in the Supplementary Conditions (and Paragraph 9.12 requires Owner to provide a copy of such programs to Contractor). The identification of the safety programs may be accomplished as follows:

SC-7.12 Insert the following after the second sentence of Paragraph 7.12.C:

The following Owner safety programs are applicable to the Work: *[here expressly identify by title and/or date, any such Owner safety programs].*

ARTICLE 8 – OTHER WORK AT THE SITE

SC-8.02 Coordination

- A. Paragraph 8.02 of the General Conditions requires that if in addition to retaining Contractor, Owner will arrange to have others perform work at the Site, Owner must provide to Contractor specified information regarding coordination of construction activities. (Note that Owner should provide specific information about the other work —nature of the work, scope, schedule, exact location—elsewhere in the Contract Documents or in other documentation.) Use the following in that case:

SC-8.02 Delete Paragraph 8.02.A in its entirety and replace with the following:

- A. Owner intends to contract with others for the performance of other work at or adjacent to the Site.**
- 1. [Here identify individual or entirety] shall have authority and responsibility for coordination of the various contractors and work forces at the Site;**
 - 2. The following specific matters are to be covered by such authority and responsibility:** *[here itemize such matters];*
 - 3. The extent of such authority and responsibilities is:** *[here provide the extent]*

ARTICLE 9 – OWNER'S RESPONSIBILITIES

SC-9.13 Owner's Site Representative

- A. Paragraph 10.03 of the General Conditions indicates that the Owner may designate a representative or agent who is not Engineer's consultant, agent, or employee, to represent Owner

at the Site (“Owner’s Site Representative”). In such case the Owner typically would not have the Engineer furnish a Resident Project Representative, hence the second version of SC-10.03.B below would be used to indicate there is no Engineer’s Resident Project Representative.

The following should be used for the identification of the Owner’s Site Representative. Note that the following must be supplemented by customized text that explains the responsibilities of the Owner’s Site Representative, so far as such are relevant to Contractor. The content of Paragraphs SC-10.03.B and C below may be a helpful starting point in drafting such supplemental text. In addition, if Owner’s retention of an Owner’s Site Representative will affect other aspects of Engineer’s status during construction, other portions of Article 10 and many other parts of the General Conditions will need to be revised. In such cases it is typical for (and Laws and Regulations may require) the design engineer (as engineer of record) to at least retain a role with respect to design-intent reviews of submittals and similar aspects of the Work.

SC-9.13 Add the following new paragraph immediately after Paragraph 9.12 of the General Conditions:

SC-9.13 Owner will furnish an “Owner’s Site Representative” to represent Owner at the Site and assist Owner in observing the progress and quality of the Work. The Owner’s Site Representative is not Engineer’s consultant, agent, or employee. Owner’s Site Representative will be [Here identify individual or entirety]. The authority and responsibilities of Owner’s Site Representative follow: [Here describe the duties and activities of the Owner’s Site Representative]

ARTICLE 10 – ENGINEER’S STATUS DURING CONSTRUCTION

SC-10.03 Project Representative

A. **This is a mandatory Supplementary Condition.** As indicated in Paragraph 10.03 of the General Conditions, in those cases in which the Engineer will provide a Resident Project Representative (RPR) during construction, the authority and responsibilities of the RPR must be specified in the Supplementary Conditions. SC-10.03.B and C, immediately below, provide a mechanism for doing so. In the alternative, in some cases Engineer will not provide RPR services, either because there will not be an RPR, or because a party other than Engineer will provide the site services. When such is the case, the second SC-10.03.B below should be used.

As indicated in Paragraph 10.03 of the General Conditions, the Owner may designate a representative or agent who is not Engineer’s consultant, agent, or employee, to represent Owner at the Site. In such case, in addition to using the second version of SC-10.03.B, below, also use SC-9.13 above.

The following suggested language, which parallels the wording of Exhibit D to EJCDC® E-500, the Agreement Between Owner and Engineer for Professional Services, is for use when Engineer will provide RPR services. It should be edited to indicate the RPR authority and responsibilities that apply to this Contract.

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.

[or]

B. On this Project, by agreement with the Owner, Engineer will not furnish a Resident Project Representative to represent Engineer at the Site or assist Engineer in observing the progress and quality of the Work. *[See explanatory text*

at beginning of SC-9.13, and at beginning of SC-10.03, for discussion of this second alternative SC-10.03.B]

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

SC-13.01 *Cost of the Work*

- A. Equipment rental charges, particularly with respect to Contractor-owned equipment, can sometimes lead to disagreements. To reduce the possibility of such disagreements, the following Supplementary Condition may be used. Note that it requires a published reference or method for determining the costs.

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 shown for such equipment in the *[cite the rate book appropriate for the Project]*. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs. Costs will include the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, shall cease to accrue when the use thereof is no longer necessary for the changed Work. Equipment or machinery with a value of less than \$1,000 will be considered small tools.

SC-13.03 *Unit Price Work*

- A. The following Supplementary Condition is typically called a “variation in estimated quantities (VEQ) clause” and facilitates administrative resolution of situations where actual quantities of unit price items differ materially from estimated quantities. Typically, the clause applies where the extended price (unit price times estimated quantity) of an item of the Unit Price Work is more than 5 percent of the Contract Price (based on estimated quantities), and the actual quantity of the units of work performed or furnished varies by more than a specified percent (typically 15 to 25 percent).

SC 13.03.E Delete Paragraph 13.03.E in its entirety and insert the following in its place:

- E. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:**
1. if the extended price of a particular item of Unit Price Work amounts to percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) and the variation in the quantity of that

particular item of Unit Price Work actually furnished or performed by Contractor differs by more than █ percent from the estimated quantity of such item indicated in the Agreement; and

2. if there is no corresponding adjustment with respect to any other item of Work; and
3. if Contractor believes that Contractor has incurred additional expense as a result thereof, Contractor may submit a Change Proposal, or if Owner believes that the quantity variation entitles Owner to an adjustment in the unit price, Owner may make a Claim, seeking an adjustment in the Contract Price.

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

SC-15.03 Substantial Completion

- A. Paragraph 15.03.A of the General Conditions requires Contractor to give notice that the Work is substantially complete; Paragraph 15.03.B requires an inspection of the Work to determine whether Engineer agrees that the Work is substantially complete. If the Work is not substantially complete, and must be inspected again at a later point, then the following Supplementary Condition, if included in the Contract, would allow Owner to recover the cost of the re-inspection.

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

- B. Paragraph 17.01.B of the General Conditions provides that for any dispute subject to final resolution under Article 17, Owner or Contractor may invoke the dispute resolution procedure called for in the Supplementary Conditions. Paragraph SC-17.02 is the location to identify any such primary dispute resolution procedure. If no procedure is identified here in the Supplementary Conditions, and the parties do not agree to a specific procedure, then the default resolution procedure will be litigation—the pursuit of rights in a court of competent jurisdiction. Note that before reaching the point of final resolution of disputes, in most cases the Owner and Contractor will already have engaged in the Claim process described in Article 12 of the General Conditions. That process allows for mediation of the dispute.

As an alternative to litigation, there are many other possible dispute resolution procedures, or combinations of procedures. One of the most common is arbitration; wording for an arbitration clause follows. A discussion of the pros and cons of the arbitration process (and there are many advocates on both sides) is beyond the scope of this Guide. Owner should consult with its legal counsel when considering the inclusion of an arbitration clause, or of any other dispute resolution procedure or combination of procedures.

The arbitration option is as follows:

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.**

SC-17.03 Attorneys' Fees

- A. In most jurisdictions in the United States, as a general matter each party to a dispute is responsible for its own attorneys' fees, unless an express agreement provides to the contrary. Some legal authorities believe that this general rule encourages claims and disputes, because claimants have**

little concern that they will be forced to pay for the opposing party's fees if the claim fails. Other authorities take the opposite view—that the enticing prospect of not only prevailing but also of having one's own fees paid by the opponent would encourage overly aggressive pursuit of claims (or overzealous defense against valid claims).

If an exception to the general American rule is preferred for disputes subject to final resolution under Article 17, then add the following express agreement:

SC-17.03 Add the following new paragraph immediately after Paragraph 17.02. *[Note: If there is no Paragraph 17.02, because neither arbitration nor any other dispute resolution process has been specified here in the Supplementary Conditions, then revise this to state "Add the following new paragraph immediately after Paragraph 17.01" and revise the numbering accordingly.]*

SC-17.03 Attorneys' Fees: For any matter subject to final resolution under this Article, the prevailing party shall be entitled to an award of its attorneys' fees incurred in the final resolution proceedings, in an equitable amount to be determined in the discretion of the court, arbitrator, arbitration panel, or other arbiter of the matter subject to final resolution, taking into account the parties' initial demand or defense positions in comparison with the final result.

U. S. DEPARTMENT OF COMMERCE ECONOMIC DEVELOPMENT ADMINISTRATION



EDA CONTRACTING PROVISIONS FOR CONSTRUCTION PROJECTS

These EDA Contracting Provisions for Construction Projects (EDA Contracting Provisions) are intended for use by recipients receiving federal assistance from the U. S. Department of Commerce - Economic Development Administration (EDA). They contain provisions specific to EDA and other federal provisions not normally found in non-federal contract documents. The requirements contained herein must be incorporated into all construction contracts and subcontracts funded wholly or in part with federal assistance from EDA.

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1. **DEFINITIONS**

Agreement – The written instrument that is evidence of the agreement between the Owner and the Contractor overseeing the Work.

Architect/Engineer - The person or other entity engaged by the Recipient to perform architectural, engineering, design, and other services related to the work as provided for in the contract.

Contract – The entire and integrated written agreement between the Owner and the Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

Contract Documents – Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents.

Contractor – The individual or entity with whom the Owner has entered into the Agreement.

Drawings or Plans – That part of the Contract Documents prepared or approved by the Architect/Engineer that graphically shows the scope, extent, and character of the Work to be performed by the Contractor.

EDA - The United States of America acting through the Economic Development Administration of the U.S. Department of Commerce or any other person designated to act on its behalf. EDA has agreed to provide financial assistance to the Owner, which includes assistance in financing the Work to be performed under this Contract. Notwithstanding EDA's role, nothing in this Contract shall be construed to create any contractual relationship between the Contractor and EDA.

Owner – The individual or entity with whom the Contractor has entered into the Agreement and for whom the Work is to be performed.

Project – The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

Recipient – A non-Federal entity receiving a Federal financial assistance award directly from EDA to carry out an activity under an EDA program, including any EDA-approved successor to the entity.

Specifications – That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.

Subcontractor – An individual or entity having direct contract with the Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

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 and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

2. **APPLICABILITY**

The Project to which the construction work covered by this Contract pertains is being assisted by the United States of America through federal assistance provided by the U.S. Department of Commerce - Economic Development Administration (EDA). Neither EDA, nor any of its departments, entities, or employees is a party to this Contract. The following EDA Contracting Provisions are included in this Contract and all subcontracts or related instruments pursuant to the provisions applicable to such federal assistance from EDA.

3. **FEDERALLY REQUIRED CONTRACT PROVISIONS**

(a) All contracts in excess of the simplified acquisition threshold - currently fixed at \$150,000 (*see* 41 U.S.C. §§ 134 and 1908) must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as may be appropriate.

(b) All contracts in excess of \$10,000 must address termination for cause and for convenience by the Recipient including the manner by which it will be effected and the basis for settlement.

(c) All construction contracts awarded in excess of \$10,000 by recipients of federal assistance and their contractors or subcontractors shall contain a provision requiring compliance with Executive Order 11246 of September 24, 1965, *Equal Employment Opportunity*, as amended by Executive Order 11375 of October 13, 1967, and Department of Labor implementing regulations at 41 C.F.R. part 60.

(d) All prime construction contracts in excess of \$2,000 awarded by Recipients must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. §§ 3141-3148) as supplemented by Department of Labor regulations at 29 C.F.R. part 5. The contracts must also include a provision for compliance with the Copeland "Anti-Kickback" Act (18 U.S.C. § 874 and 40 U.S.C. § 3145) as supplemented by Department of Labor regulations at 29 C.F.R. part 3.

(e) All contracts awarded by the Recipient in excess of \$100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. §§ 3702 and 3704 (the Contract Work Hours and Safety Standards Act) as supplemented by Department of Labor regulations at 29 C.F.R. part 5.

(f) All contracts must include EDA requirements and regulations that involve a requirement on the contractor or sub-contractor to report information to EDA, the Recipient or any other federal agency.

- (g) All contracts must include EDA requirements and regulations pertaining to patent rights with respect to any discovery or invention which arises or is developed in the course of or under such contract.
- (h) All contracts must include EDA requirements and regulations pertaining to copyrights and rights in data.
- (i) All contracts and subgrants in excess of \$150,000 must contain a provision that requires compliance with all applicable standards, orders, or requirements issued under the Clean Air Act (42 U.S.C. § 7401 *et seq.*) and the Federal Water Pollution Control Act (Clean Water Act) (33 U.S.C. § 1251 *et seq.*), and Executive Order 11738, *Providing for Administration of the Clean Air Act and the Federal Water Pollution Control Act With Respect to Federal Contracts, Grants, or Loans.*
- (j) Contracts must contain mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. § 6201).
- (k) Contracts must contain a provision ensuring that contracts are not to be made to parties on the government wide Excluded Parties List System in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 C.F.R. part 180.
- (l) Contracts must contain a provision ensure compliance with the Byrd Anti-Lobbying Amendment (31 U.S.C. § 1352) under which contractors that apply or bid for an award of \$100,000 or more must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. § 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.
- (m) If the Recipient is a state agency or agency of a political subdivision of a state, any contract awarded must contain a provision ensuring compliance with section 6002 of the Solid Waste Disposal Act (42 U.S.C. § 6962), as amended by the Resource Conservation and Recovery Act related to the procurement of recovered materials.

4. **REQUIRED PROVISIONS DEEMED INSERTED**

Each and every provision of law and clause required by law to be inserted in this contract shall be deemed to be inserted herein and the contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the contract shall forthwith be physically amended to make such insertion of correction.

5. **INSPECTION BY EDA REPRESENTATIVES**

The authorized representatives and agents of EDA shall be permitted to inspect all work, materials, payrolls, personnel records, invoices of materials, and other relevant data and records.

6. **EXAMINATION AND RETENTION OF CONTRACTOR'S RECORDS**

(a) The Owner, EDA, or the Comptroller General of the United States, or any of their duly authorized representatives shall, generally until three years after final payment under this contract, have access to and the right to examine any of the Contractor's directly pertinent books, documents, papers, or other records involving transactions related to this contract for the purpose of making audit, examination, excerpts, and transcriptions.

(b) The Contractor agrees to include in first-tier subcontracts under this contract a clause substantially the same as paragraph (a) above. "Subcontract," as used in this clause, excludes purchase orders that do not exceed \$10,000.

(c) The periods of access and examination in paragraphs (a) and (b) above for records relating to (1) appeals under the disputes clause of this contract, (2) litigation or settlement of claims arising from the performance of this contract, or (3) costs and expenses of this contract to which the Owner, EDA, or Comptroller General or any of their duly authorized representatives has taken exception shall continue until disposition of such appeals, litigation, claims, or exceptions.

7. **CONSTRUCTION SCHEDULE AND PERIODIC ESTIMATES**

Immediately after execution and delivery of the contract, and before the first partial payment is made, the Contractor shall deliver to the Owner an estimated construction progress schedule in a form satisfactory to the Owner, showing the proposed dates of commencement and completion of each of the various subdivisions of work required under the Contract Documents and the anticipated amount of each monthly payment that will become due to the Contractor in accordance with the progress schedule. The Contractor also shall furnish the Owner (a) a detailed estimate giving a complete breakdown of the contract price and (b) periodic itemized estimates of work done for the purpose of making partial payments thereon. The costs employed in making up any of these schedules will be used only to determine the basis of partial payments and will not be considered as fixing a basis for additions to or deductions from the contract price.

8. **CONTRACTOR'S TITLE TO MATERIAL**

No materials, supplies, or equipment for the work shall be purchased by the Contractor or by any subcontractor that is subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. The Contractor warrants and guarantees that he/she has good title to all work, materials, and equipment used by him/her in the Work, free and clear of all liens, claims, or encumbrances.

9. **INSPECTION AND TESTING OF MATERIALS**

All materials and equipment used in the completion of the Work shall be subject to adequate inspection and testing in accordance with accepted standards. The laboratory or inspection agency shall be selected by the Owner. Materials of construction, particularly those upon which the strength and durability of any structure may depend, shall be subject to inspection and testing to establish conformance with specifications and suitability for intended uses.

10. **"OR EQUAL" CLAUSE**

Whenever a material, article, or piece of equipment is identified in the Contract Documents by reference to manufacturers' or vendors' names, trade names, catalogue numbers, etc., it is intended merely to establish a standard. Any material, article, or equipment of other manufacturers and vendors that will perform adequately the duties imposed by the general design will be considered equally acceptable provided the material, article, or equipment so proposed is, in the opinion of the Architect/Engineer, of equal substance and function. However, such substitution material, article, or equipment shall not be purchased or installed by the Contractor without the Architect/Engineer's written approval.

11. **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 that 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 Architect/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 the Owner in the Contract Documents.

(b) To the fullest extent permitted by Laws and Regulations, the Contractor shall indemnify and hold harmless the Owner and the Architect/Engineer, and the officers, directors, 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.

12. **CLAIMS FOR EXTRA COSTS**

No claims for extra work or cost shall be allowed unless the same was done in pursuance of a written order from the Architect/Engineer approved by the Owner.

13. **CONTRACTORS AND SUBCONTRACTORS INSURANCE**

(a) The Contractor shall not commence work under this Contract until the Contractor has obtained all insurance reasonably required by the Owner, nor shall the Contractor allow any subcontractor to commence work on his/her subcontract until the insurance required of the subcontractor has been so obtained and approved.

(b) Types of insurance normally required are:

- (1) Workers' Compensation
- (2) Contractor's Public Liability and Property Damage
- (3) Contractor's Vehicle Liability
- (4) Subcontractors' Public Liability, Property Damage and Vehicle Liability
- (5) Builder's Risk (Fire and Extended Coverage)

(c) **Scope of Insurance and Special Hazards:** The insurance obtained, which is described above, shall provide adequate protection for the Contractor and his/her subcontractors, respectively, against damage claims that may arise from operations under this contract, whether such operations be by the insured or by anyone directly or indirectly employed by him/her and also against any of the special hazards that may be encountered in the performance of this Contract.

(d) **Proof of Carriage of Insurance:** The Contractor shall furnish the Owner with certificates showing the type, amount, class of operations covered, effective dates, and dates of expiration of applicable insurance policies.

14. **CONTRACT SECURITY BONDS**

(a) If the amount of this Contract exceeds \$150,000, the Contractor shall furnish a performance bond in an amount at least equal to one hundred percent (100%) of the Contract price as security for the faithful performance of this Contract and also a payment bond in an amount equal to one hundred percent (100%) of the Contract price or in a penal sum not less than that prescribed by State, Territorial, or local law, as security for the payment of all persons performing labor on the Work under this Contract and furnishing materials in connection with this Contract. The performance bond and the payment bond may be in one or in separate instruments in accordance with local law. Before final acceptance, each bond must be approved by EDA. If the amount of this Contract does not exceed \$150,000, the Owner shall specify the amount of the payment and performance bonds.

(b) All bonds shall be in the form prescribed by the Contract Documents except as otherwise provided in applicable laws or regulations, and shall be executed by such sureties as are named in the current list of *Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies* as published in Treasury Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent's

authority to act. Surety companies executing the bonds must also be authorized to transact business in the state where the Work is located.

15. **LABOR STANDARDS - DAVIS-BACON AND RELATED ACTS**
(as required by section 602 of PWEDA)

(a) **Minimum Wages**

(1) All laborers and mechanics employed or working upon the site of the Work in the construction or development of the Project will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act at 29 C.F.R. part 3, the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at the time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor, which is attached hereto and made a part hereof, regardless of any contractual relationship that may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 C.F.R. § 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 C.F.R. § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates determined under 29 C.F.R. § 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(2) (i) Any class of laborers or mechanics to be employed under the Contract, but not listed in the wage determination, shall be classified in conformance with the wage determination. EDA shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(A) The work to be performed by the classification requested is not performed by a classification in the wage determination;

(B) The classification is utilized in the area by the construction industry; and

(C) The proposed wage rate, including any bona fide fringe benefits, bears a

reasonable relationship to the wage rates contained in the wage determination.

(ii) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and EDA or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by EDA or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210.

(iii) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and EDA or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), EDA or its designee shall refer the questions, including the views of all interested parties and the recommendation of EDA or its designee, to the Administrator for determination.

(iv) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(2)(ii) or (iii) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(3) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(4) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(b) **Withholding**

EDA or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this Contract or any other federal contract with the same prime Contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the Contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper employed or working on the site of the Work in the construction or development of the Project, all or part of the wages required by the Contract, EDA or its designee may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations

have ceased. EDA or its designee may, after written notice to the Contractor, disburse such amounts withheld for and on account of the Contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

(c) **Payrolls and basic records**

(1) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the Work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the Work in the construction or development of the Project. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 C.F.R. § 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, the plan or program is financially responsible, and the plan or program has been communicated in writing to the laborers or mechanics affected, and provide records that show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(2) (i) For each week in which Contract work is performed, the Contractor shall submit a copy of all payrolls to the Owner for transmission to EDA or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 C.F.R. part 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose. It may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, D.C. 20402; or downloaded from the U.S. Department of Labor's website at <https://www.dol.gov/whd/forms/wh347.pdf>. The prime Contractor is responsible for the submission of copies of payrolls by all subcontractors

(ii) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the Contract and shall certify the following:

(A) That the payroll for the payroll period contains the information required to be maintained under 29 C.F.R. § 5.5(a)(3)(i) and that such information is correct and complete;

(B) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the Contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 C.F.R. part 3; and

(C) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the Contract.

(iii) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 15(c)(2)(ii) of this section.

(iv) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under section 1001 of Title 18 and section 3729 of Title 31 of the U.S. Code.

(3) The Contractor or subcontractor shall make the records required under paragraph 15(c)(1) of this section available for inspection, copying, or transcription by authorized representatives of EDA or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, EDA or its designee may, after written notice to the Contractor or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 C.F.R. § 5.12.

(d) **Apprentices and Trainees.**

(1) **Apprentices.** Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training (Bureau), or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any

apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a Contractor is performing construction on a Project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) **Trainees.** Except as provided in 29 C.F.R. § 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program that has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman's hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(3) **Equal employment opportunity.** The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity

requirements of Executive Order 11246, *Equal Employment Opportunity*, as amended, and 29 C.F.R. part 30.

(e) **Compliance with Copeland Anti-Kickback Act Requirements.** The Contractor shall comply with the Copeland Anti-Kickback Act (18 U.S.C. § 874 and 40 U.S.C. § 3145) as supplemented by Department of Labor regulations (29 C.F.R. part 3, “Contractors and Subcontractors on Public Buildings or Public Works Financed in Whole or in Part by Loans or Grants of the United States”). The Act provides that the Contractor and any subcontractors shall be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which they are otherwise entitled. The Owner shall report all suspected or reported violations to EDA.

(f) **Subcontracts.** The Contractor and any subcontractors will insert in any subcontracts the clauses contained in 29 C.F.R. §§ 5.5(a)(1) through (10) and such other clauses as EDA or its designee may require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 C.F.R. § 5.5.

(g) **Contract termination; debarment.** The breach of the contract clauses in 29 C.F.R. § 5.5 may be grounds for termination of the contract, and for debarment as a Contractor and a subcontractor as provided in 29 C.F.R. § 5.12.

(h) **Compliance with Davis-Bacon and Related Act Requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 C.F.R. parts 1, 3, and 5 are herein incorporated by reference in this contract.

(i) **Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this Contract shall not be subject to the general disputes clause of this Contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 C.F.R. parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and EDA or its designee, the U.S. Department of Labor, or the employees or their representatives.

(j) **Certification of Eligibility.**

(1) By entering into this Contract, the Contractor certifies that neither it nor any person or firm that has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 C.F.R. § 5.12(a)(1).

(2) No part of this Contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 C.F.R. § 5.12(a)(1).

(3) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. § 1001.

16. **LABOR STANDARDS - CONTRACT WORK HOURS AND SAFETY STANDARDS ACT**

As used in this paragraph, the terms “laborers” and “mechanics” include watchmen and guards.

(a) **Overtime requirements.** No Contractor or subcontractor contracting for any part of the Contract work, which may require or involve the employment of laborers or mechanics, shall require or permit any such laborer or mechanic in any workweek in which that person is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(b) **Violation; liability for unpaid wages, liquidated damages.** In the event of any violation of the clause set forth in paragraph (a) of this section, the Contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (a) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (a) of this section.

(c) **Withholding for unpaid wages and liquidated damages.** EDA or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any monies payable on account of work performed by the Contractor or subcontractor under any such Contract or any other federal contract with the same prime Contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b) of this section.

(d) **Subcontracts.** The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (a) through (c) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (a) through (c) of this section.

17. **EQUAL EMPLOYMENT OPPORTUNITY**

(a) The Recipient hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 C.F.R. chapter 60, which is paid for in whole or in part with funds obtained from EDA, the following equal opportunity clause:

During the performance of this contract, the Contractor agrees as follows:

Economic Development Administration
Contracting Provisions for Construction Projects

(1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training including apprenticeship. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

(4) The Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers representatives of the Contractor's commitments hereunder, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965 and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by EDA and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the Contractor's noncompliance with the nondiscrimination clauses of

this Contract or with any of the said rules, regulations, or orders, this Contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally-assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation or order of the Secretary of Labor, or as otherwise provided by law.

(8) The Contractor will include the portion of the sentence immediately preceding paragraph 17(a)(1) and the provisions of paragraphs 17(a)(1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as EDA or the Secretary of Labor may direct as a means of enforcing such provisions, including sanctions for noncompliance. Provided, however, that in the event the Contractor becomes involved in or is threatened with litigation with a subcontractor or vendor as a result of such direction by EDA or the Secretary of Labor, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

(9) The Recipient further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally-assisted construction work. Provided, however, that if the Recipient so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality, or subdivision of such government that does not participate in work on or under the Contract.

(10) The Recipient agrees that it will assist and cooperate actively with EDA and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish EDA and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist EDA in the discharge of the EDA's primary responsibility for securing compliance.

(11) The Recipient further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a Contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by EDA or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the Recipient agrees that if it fails or refuses to comply with these undertakings, EDA may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this EDA financial assistance; refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case

to the Department of Justice for appropriate legal proceedings.

(b) Exemptions to Above Equal Opportunity Clause (41 C.F.R. chapter 60):

(1) Contracts and subcontracts not exceeding \$10,000 (other than Government bills of lading, and other than contracts and subcontracts with depositories of Federal funds in any amount and with financial institutions which are issuing and paying agents for U.S. savings bonds and savings notes) are exempt. The amount of the Contract, rather than the amount of the federal financial assistance, shall govern in determining the applicability of this exemption.

(2) Except in the case of subcontractors for the performance of construction work at the site of construction, the clause shall not be required to be inserted in subcontracts below the second tier.

(3) Contracts and subcontracts not exceeding \$10,000 for standard commercial supplies or raw materials are exempt.

18. **CONTRACTING WITH SMALL, MINORITY AND WOMEN'S BUSINESSES**

(a) If the Contractor intends to let any subcontracts for a portion of the work, the Contractor shall take affirmative steps to assure that small, minority and women's businesses are used when possible as sources of supplies, equipment, construction, and services.

(b) Affirmative steps shall consist of:

(1) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;

(2) Ensuring that small and minority businesses and women's business enterprises are solicited whenever they are potential sources;

(3) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses and women's business enterprises;

(4) Establishing delivery schedules, where the requirements of the contract permit, which encourage participation by small and minority businesses and women's business enterprises;

(5) Using the services and assistance of the U.S. Small Business Administration, the Minority Business Development Agency of the U.S. Department of Commerce, and State and local governmental small business agencies;

(6) Requiring each party to a subcontract to take the affirmative steps of this section; and

(7) The Contractor is encouraged to procure goods and services from labor surplus area firms.

19. **HEALTH, SAFETY, AND ACCIDENT PREVENTION**

(a) In performing this contract, the Contractor shall:

(1) Ensure that no laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to their health and/or safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation;

(2) Protect the lives, health, and safety of other persons;

(3) Prevent damage to property, materials, supplies, and equipment; and

(4) Avoid work interruptions.

(b) For these purposes, the Contractor shall:

(1) Comply with regulations and standards issued by the Secretary of Labor at 29 C.F.R. part 1926. Failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (40 U.S.C. §§ 3701 – 3708); and

(2) Include the terms of this clause in every subcontract so that such terms will be binding on each subcontractor.

(c) The Contractor shall maintain an accurate record of exposure data on all accidents incident to work performed under this Contract resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment, and shall report this data in the manner prescribed by 29 C.F.R. part 1904.

(d) The Owner shall notify the Contractor of any noncompliance with these requirements and of the corrective action required. This notice, when delivered to the Contractor or the Contractor's representative at the site of the Work, shall be deemed sufficient notice of the noncompliance and corrective action required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to take corrective action promptly, the Owner may issue an order stopping all or part of the Work until satisfactory corrective action has been taken. The Contractor shall not base any claim or request for equitable adjustment for additional time or money on any stop order issued under these circumstances.

(e) The Contractor shall be responsible for its subcontractors' compliance with the provisions of this clause. The Contractor shall take such action with respect to any subcontract as EDA, or the Secretary of Labor shall direct as a means of enforcing such provisions.

20. **CONFLICT OF INTEREST AND OTHER PROHIBITED INTERESTS**

- (a) No official of the Owner who is authorized in such capacity and on behalf of the Owner to negotiate, make, accept, or approve, or to take part in negotiating, making, accepting, or approving any architectural, engineering, inspection, construction or material supply contract or any subcontract in connection with the construction of the Project, shall become directly or indirectly interested personally in this Contract or in any part hereof.
- (b) No officer, employee, architect, attorney, engineer, or inspector of or for the Owner who is authorized in such capacity and on behalf of the Owner to exercise any legislative, executive, supervisory or other similar functions in connection with the construction of the Project, shall become directly or indirectly interested personally in this Contract or in any part thereof, any material supply contract, subcontract, insurance contract, or any other contract pertaining to the Project.
- (c) The Contractor may not knowingly contract with a supplier or manufacturer if the individual or entity who prepared the Contract Documents has a corporate or financial affiliation with the supplier or manufacturer.
- (d) The Owner's officers, employees, or agents shall not engage in the award or administration of this Contract if a conflict of interest, real or apparent, may be involved. Such a conflict may arise when: (i) the employee, officer or agent; (ii) any member of their immediate family; (iii) their partner or (iv) an organization that employs, or is about to employ, any of the above, has a financial interest in the Contractor. The Owner's officers, employees, or agents shall neither solicit nor accept gratuities, favors, or anything of monetary value from the Contractor or subcontractors.
- (e) If the Owner finds after a notice and hearing that the Contractor, or any of the Contractor's agents or representatives, offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee, or agent of the Owner or EDA in an attempt to secure this Contract or favorable treatment in awarding, amending, or making any determinations related to the performance of this Contract, the Owner may, by written notice to the Contractor, terminate this Contract. The Owner may also pursue other rights and remedies that the law or this Contract provides. However, the existence of the facts on which the Owner bases such findings shall be an issue and may be reviewed in proceedings under the dispute resolution provisions of this Contract.
- (f) In the event this Contract is terminated as provided in paragraph (e) of this section, the Owner may pursue the same remedies against the Contractor as it could pursue in the event of a breach of this Contract by the Contractor. As a penalty, in addition to any other damages to which it may be entitled by law, the Owner may pursue exemplary damages in an amount (as determined by the Owner) which shall not be less than three nor more than ten times the costs the Contractor incurs in providing any such gratuities to any such officer or employee.

21. **RESTRICTIONS ON LOBBYING**

(a) This Contract, or subcontract is subject to 31 U.S.C. § 1352, regarding lobbying restrictions. The section is explained in the common rule, 15 C.F.R. part 28 (55 FR 6736-6748, February 26, 1990). Each bidder under this Contract or subcontract is generally prohibited from using federal funds for lobbying the Executive or Legislative Branches of the Federal Government in connection with this EDA Award.

(b) **Contract Clause Threshold:** This Contract Clause regarding lobbying must be included in each bid for a contract or subcontract exceeding \$100,000 of federal funds at any tier under the EDA Award.

(c) **Certification and Disclosure:** Each bidder of a contract or subcontract exceeding \$100,000 of federal funds at any tier under the federal Award must file Form CD-512, *Certification Regarding Lobbying – Lower Tier Covered Transactions*, and, if applicable, Standard Form-LLL, *Disclosure of Lobbying Activities*, regarding the use of any nonfederal funds for lobbying. Certifications shall be retained by the Contractor or subcontractor at the next higher tier. All disclosure forms, however, shall be forwarded from tier to tier until received by the Recipient of the EDA Award, who shall forward all disclosure forms to EDA.

(d) **Continuing Disclosure Requirement:** Each Contractor or subcontractor that is subject to the Certification and Disclosure provision of this Contract Clause is required to file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form previously filed by such person. Disclosure forms shall be forwarded from tier to tier until received by the Recipient of the EDA Award, who shall forward all disclosure forms to EDA.

(e) **Indian Tribes, Tribal Organizations, or Other Indian Organizations:** Indian tribes, tribal organizations, or any other Indian organizations, including Alaskan Native organizations, are excluded from the above lobbying restrictions and reporting requirements, but only with respect to expenditures that are by such tribes or organizations for lobbying activities permitted by other federal law. An Indian tribe or organization that is seeking an exclusion from Certification and Disclosure requirements must provide EDA with the citation of the provision or provisions of federal law upon which it relies to conduct lobbying activities that would otherwise be subject to the prohibitions in and to the Certification and Disclosure requirements of 31 U.S.C. § 1352, preferably through an attorney's opinion. Note, also, that a non-Indian subrecipient, contractor, or subcontractor under an award to an Indian tribe, for example, is subject to the restrictions and reporting requirements.

22. **HISTORICAL AND ARCHAEOLOGICAL DATA PRESERVATION**

The Contractor agrees to facilitate the preservation and enhancement of structures and objects of historical, architectural or archaeological significance and when such items are found and/or unearthed during the course of project construction. Any excavation by the Contractor that uncovers an historical or archaeological artifact shall be immediately reported to the Owner and a representative of EDA. Construction shall be temporarily halted pending the notification process and further directions issued by EDA after consultation with the State Historic

Preservation Officer (SHPO) for recovery of the items. *See* the National Historic Preservation Act of 1966 (54 U.S.C. § 300101 *et seq.*, formerly at 16 U.S.C. § 470 *et seq.*) and Executive Order No. 11593 of May 31, 1971.

23. **CLEAN AIR AND WATER**

Applicable to Contracts in Excess of \$150,000

(a) **Definition.** “Facility” means any building, plant, installation, structure, mine, vessel, or other floating craft, location, or site of operations, owned, leased, or supervised by the Contractor or any subcontractor, used in the performance of the Contract or any subcontract. When a location or site of operations includes more than one building, plant, installation, or structure, the entire location or site shall be deemed a facility except when the Administrator, or a designee, of the United States Environmental Protection Agency (EPA) determines that independent facilities are collocated in one geographical area.

(b) In compliance with regulations issued by the EPA, 2 C.F.R. part 1532, pursuant to the Clean Air Act, as amended (42 U.S.C. § 7401 *et seq.*); the Federal Water Pollution Control Act, as amended (33 U.S.C. § 1251 *et seq.*); and Executive Order 11738, the Contractor agrees to:

(1) Not utilize any facility in the performance of this contract or any subcontract which is listed on the Excluded Parties List System, part of the System for Award Management (SAM), pursuant to 2 C.F.R. part 1532 for the duration of time that the facility remains on the list;

(2) Promptly notify the Owner if a facility the Contractor intends to use in the performance of this contract is on the Excluded Parties List System or the Contractor knows that it has been recommended to be placed on the List;

(3) Comply with all requirements of the Clean Air Act and the Federal Water Pollution Control Act, including the requirements of section 114 of the Clean Air Act and section 308 of the Federal Water Pollution Control Act, and all applicable clean air and clean water standards; and

(4) Include or cause to be included the provisions of this clause in every subcontract and take such action as EDA may direct as a means of enforcing such provisions.

24. **USE OF LEAD-BASED PAINTS ON RESIDENTIAL STRUCTURES**

(a) If the work under this Contract involves construction or rehabilitation of residential structures over \$5,000, the Contractor shall comply with the Lead-based Paint Poisoning Prevention Act (42 U.S.C. § 4831). The Contractor shall assure that paint or other surface coatings used in a residential property does not contain lead equal to or in excess of 1.0 milligram per square centimeter or 0.5 percent by weight or 5,000 parts per million (ppm) by weight. For purposes of this section, “residential property” means a dwelling unit, common areas, building exterior surfaces, and any surrounding land, including outbuildings, fences and play equipment affixed to the land, belonging to an owner and available for use by residents, but not

including land used for agricultural, commercial, industrial or other non-residential purposes, and not including paint on the pavement of parking lots, garages, or roadways.

- (b) As a condition to receiving assistance under PWEDA, recipients shall assure that the restriction against the use of lead-based paint is included in all contracts and subcontracts involving the use of federal funds.

25. **ENERGY EFFICIENCY**

The Contractor shall comply with all standards and policies relating to energy efficiency which are contained in the energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. § 6201) for the State in which the Work under the Contract is performed.

26. **ENVIRONMENTAL REQUIREMENTS**

When constructing a Project involving trenching and/or other related earth excavations, the Contractor shall comply with the following environmental constraints:

- (1) **Wetlands.** When disposing of excess, spoil, or other construction materials on public or private property, the Contractor shall not fill in or otherwise convert wetlands.
- (2) **Floodplains.** When disposing of excess, spoil, or other construction materials on public or private property, the Contractor shall not fill in or otherwise convert 100 year floodplain areas delineated on the latest Federal Emergency Management Agency (FEMA) Floodplain Maps, or other appropriate maps, i.e., alluvial soils on Natural Resource Conservation Service (NRCS) Soil Survey Maps.
- (3) **Endangered Species.** The Contractor shall comply with the Endangered Species Act, which provides for the protection of endangered and/or threatened species and critical habitat. Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of the Contractor, the Contractor will immediately report this evidence to the Owner and a representative of EDA. Construction shall be temporarily halted pending the notification process and further directions issued by EDA after consultation with the U.S. Fish and Wildlife Service.

27. **DEBARMENT, SUSPENSION, INELIGIBILITY, AND VOLUNTARY EXCLUSIONS**

As required by Executive Orders 12549 and 12689, *Debarment and Suspension*, 2 C.F.R. Part 180 and implemented by the Department of Commerce at 2 C.F.R. part 1326, for prospective participants in lower tier covered transactions (except subcontracts for goods or services under the \$25,000 small purchase threshold unless the subrecipient will have a critical influence on or substantive control over the award), the Contractor agrees that:

- (1) By entering into this Contract, the Contractor and subcontractors certify, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared Economic Development Administration Contracting Provisions for Construction Projects

ineligible, or voluntarily excluded from participation in this Contract by any federal department or agency.

(2) Where the Contractor or subcontractors are unable to certify to any of the statements in this certification, the Contractor or subcontractors shall attach an explanation to this bid.

See also 2 C.F.R. part 180 and 2 C.F.R. § 200.342.

28. **EDA PROJECT SIGN**

The Contractor shall supply, erect, and maintain in good condition a Project sign according to the specifications provided by EDA. To the extent practical, the sign should be a free standing sign. Project signs shall not be located on public highway rights-of-way. Location and height of signs will be coordinated with the local agency responsible for highway or street safety in the Project area, if any possibility exists for obstructing vehicular traffic line of sight. Whenever the EDA site sign specifications conflict with State law or local ordinances, the EDA Regional Director will permit such conflicting specifications to be modified so as to comply with State law or local ordinance.

29. **BUY AMERICA**

To the greatest extent practicable, contractors are encouraged to purchase American-made equipment and products with funding provided under EDA financial assistance awards.

NOTE: To find the Goals for minority participation (%), click "What to use?" and search for the project's County.



**NOTICE OF REQUIREMENTS FOR AFFIRMATIVE ACTION
TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY
(EXECUTIVE ORDER 11246 AND 41 CFR PART 60-4)**

The following Notice shall be included in, and shall be a part of all solicitations for offers and bids on all Federal and federally assisted construction contracts or subcontracts in excess of \$10,000.

The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Timetables	Goals for minority participation for each trade	Goals for female participation for each trade
<u>What % to use?</u>	4.5 %	6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is:

State of Kentucky

County of McCreary

City of Whitley City

**CERTIFICATION REGARDING LOBBYING
LOWER TIER COVERED TRANSACTIONS**

Applicants should review the instructions for certification included in the regulations before completing this form. Signature on this form provides for compliance with certification requirements under 15 CFR Part 28, "New Restrictions on Lobbying."

LOBBYING

As required by Section 1352, Title 31 of the U.S. Code, and implemented at 15 CFR Part 28, for persons entering into a grant, cooperative agreement or contract over \$100,000 or a loan or loan guarantee over \$150,000 as defined at 15 CFR Part 28, Sections 28.105 and 28.110, the applicant certifies that to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure occurring on or before October 23, 1996, and of not less than \$11,000 and not more than \$110,000 for each such failure occurring after October 23, 1996.

Statement for Loan Guarantees and Loan Insurance

The undersigned states, to the best of his or her knowledge and belief, that:

In any funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this commitment providing for the United States to insure or guarantee a loan, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

Submission of this statement is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required statement shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure occurring on or before October 23, 1996, and of not less than \$11,000 and not more than \$110,000 for each such failure occurring after October 23, 1996.

As the duly authorized representative of the applicant, I hereby certify that the applicant will comply with the above applicable certification.

NAME OF APPLICANT

McCreary County Water District

AWARD NUMBER AND/OR PROJECT NAME

04-79-07457 / Pump Station and Force Main

PRINTED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE

What % to use?

SIGNATURE

DATE

NOTE: To find the Goals for minority participi

EDA PROJECT SIGN

The Contractor shall supply, erect, and maintain in good condition a project sign according to the specifications set forth below:

EDA SITE SIGN SPECIFICATIONS

Size: 4' x 8' x ¾"

Materials: Exterior grade/MDO plywood (APA rating A-B)

Supports: 4" x 4" x 12' posts with 2" x 4" cross branching

Erection: Posts shall be set a minimum of three feet deep in concrete footings that are at least 12" in diameter.

Paint: Outdoor enamel

Colors: Jet Black, Blue (PMS300), and Gold (PMS7406). Specifically, on white background the following will be placed:

The U. S. Department of Commerce seal in blue, black, and gold;

“EDA” in blue;

“U. S. DEPARTMENT OF COMMERCE ECONOMIC DEVELOPMENT
ADMINISTRATION” in black;

“In partnership with” in blue;

(Actual name of the) “EDA Grant Recipient” in black;

Lettering: Specific fonts are named below; positioning will be as shown on the attached illustration.

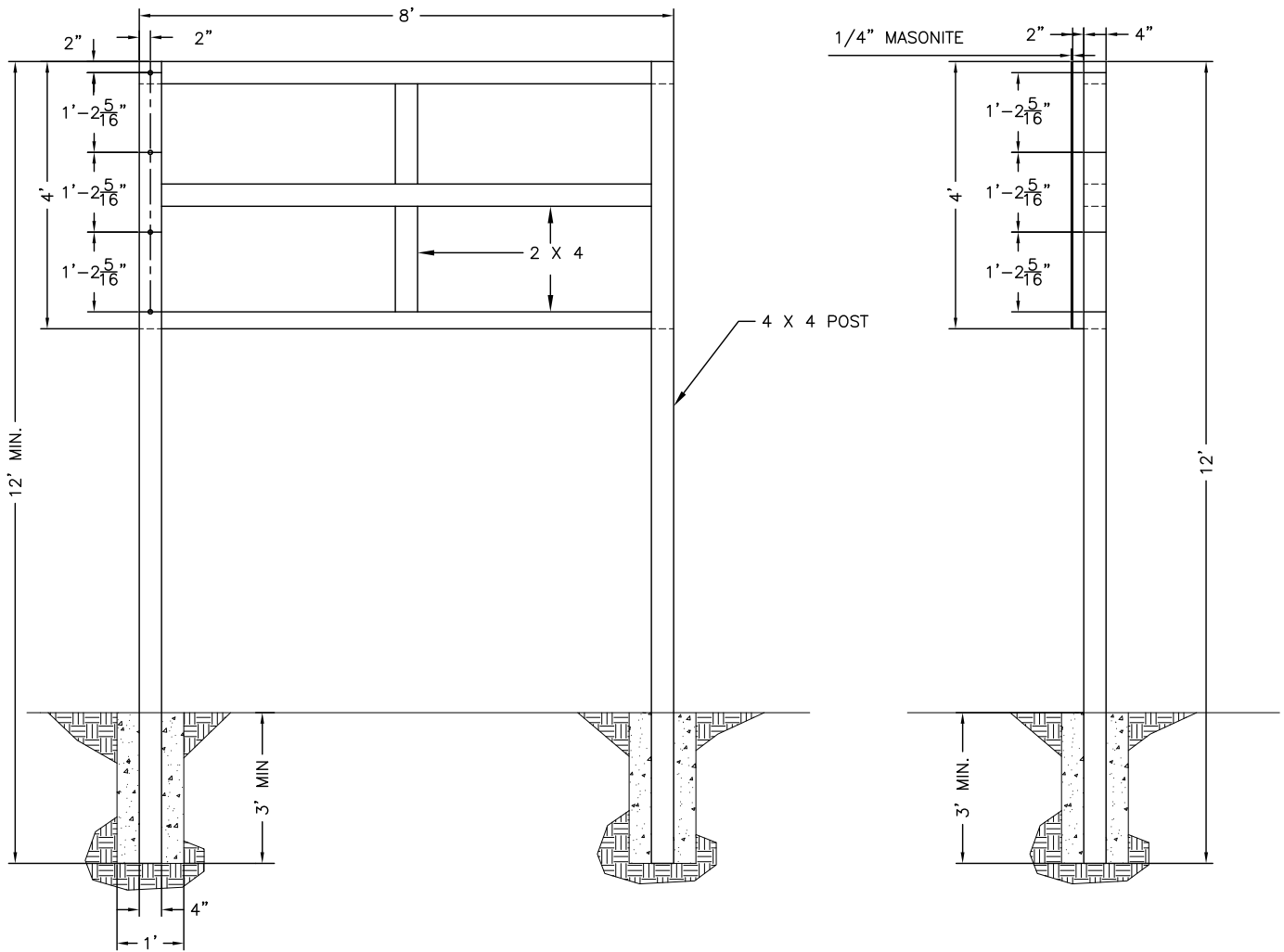
“U. S. DEPARTMENT OF COMMERCE ECONOMIC DEVELOPMENT
ADMINISTRATION” use Bank Gothic Medium - **BANK GOTHIC MED**

“In partnership with” use Univers™ 55 Oblique - **Univers 55**

(Name of) “EDA Grant Recipient” use Univers™ Extra Black 85 **Univers 85**

Project signs will not be erected on public highway rights-of-way. If any possibility exists for obstruction to traffic line of sight, the location and height of the sign will be coordinated with the agency responsible for highway or street safety in the area.

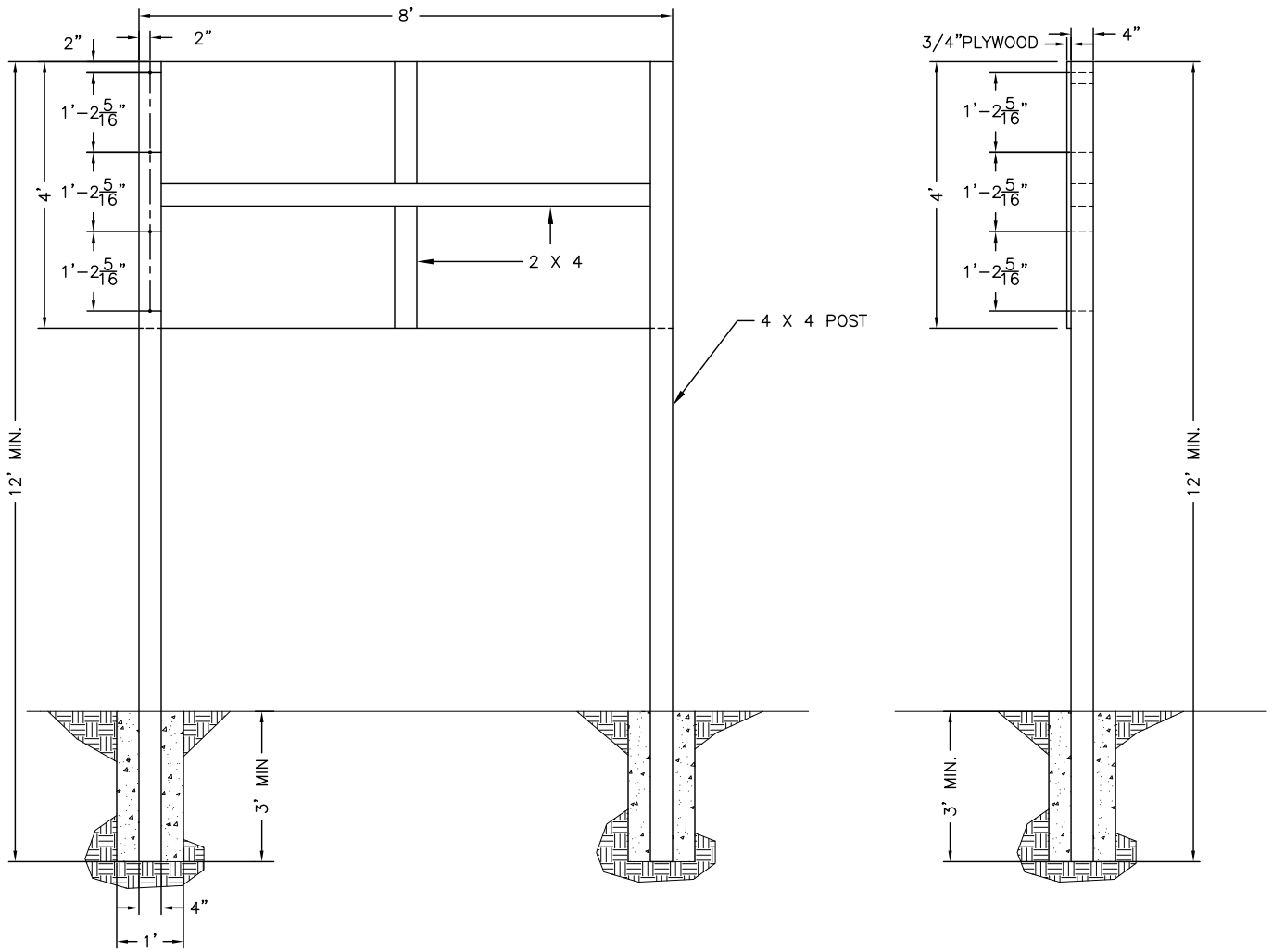
The EDA Regional Director may permit modifications to these specifications if they conflict with state law or local ordinances.



SIGN A
MASONITE SIGN
SCALE: 3/8" = 1'

PROJECT - SIGN A

ECONOMIC DEVELOPMENT ADMINISTRATION



SIGN B
PLYWOOD SIGN
SCALE: 3/8" = 1'

PROJECT - SIGN B
ECONOMIC DEVELOPMENT ADMINISTRATION



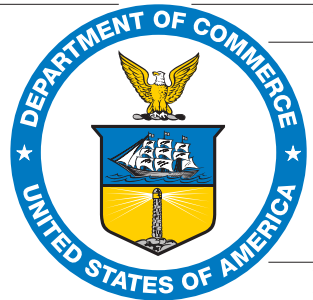
EDA

U.S. DEPARTMENT OF COMMERCE ECONOMIC DEVELOPMENT ADMINISTRATION

In partnership with

<EDA Grant Recipient Name>

Black
Blue= PMS300
Gold= PMS7406



EDA

U.S. DEPARTMENT OF COMMERCE ECONOMIC DEVELOPMENT ADMINISTRATION

In partnership with

<EDA Grant Recipient Name>

2.25"

13.5"

1.75"

1.75"

10"

2.0"

1.5"

4.0"

3.0"

3.0"

3.75"

15.0"

48"

Division 1 – General Requirements

SECTION 01010 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The project will include the installation of 6,375 LF of 8-inch PVC force main, 180 LF of 8-inch PVC gravity sewer, 240 LF of 16-inch steel casing Pipe (directional bore), 3 sanitary sewer manholes, one pump station and valve vault, one mag meter vault, demolition and installation of a new screening system, and related appurtenances.
- B. The Contractor shall include all materials, labor and equipment necessary for completion of the Project. The Contract Documents are intended to provide the basis for proper completion of the work suitable for the intended use of the Owner. Anything not expressly set forth but which is reasonably implied or necessary for proper performance of the Project shall be included.
- C. Continuous Operations: The existing system must be maintained in continuous operation in such a manner that it meets all local, state, and federal requirements. The Contractor is responsible not to deactivate, demolish, or interfere with any system required for the continuous operation until a temporary or new permanent-like system has been installed and is operational. The Contractor is responsible for payment of all fines resulting from any action or inaction on his part or the part of his subcontractors during performance of the Work that is illegal.
- D. The following major Work items are included in the Contract:
 - 1. Pump Station Installation
 - 2. Force Main Installation
 - 3. Screening System Installation

1.02 PERMITS

Obtain any permits related or required by the Work in this Contract.

1.03 CODES

Comply with applicable codes and regulations of authorities having jurisdiction. Submit copies of inspection reports, notices, citations and similar communication to the Owner.

In the event that human remains are encountered during project activities, all work should be immediately stopped in the area. The area should be cordoned off, and in accordance with KRS 72.020 the county coroner and local law

enforcement must be contacted immediately. Upon confirmation that the human remains are not of forensic interest, the unanticipated discovery must be reported to the Kentucky Heritage Council.

1.04 EXISTING CONDITIONS AND DIMENSIONS

- A. The Work in this Contract will primarily be performed in or around existing facilities of which must remain functional. This Contractor must maintain the required items and/or systems functional without additional effort by the Owner's personnel and at no extra costs to the Owner.
- B. The Contractor is responsible for verifying all existing conditions, elevations, dimensions, etc., and providing his finished work to facilitate existing conditions.

END OF SECTION 01010

SECTION 01015 - WORK SEQUENCE

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall conform to all miscellaneous requirements as contained in the Contract.

1.02 RELATED REQUIREMENTS

- A. Section 00700 - General Conditions.
- B. Section 01010 - Summary of Work.
- C. Section 01040 - Coordination.

PART 2 - PRODUCTS

2.01 MATERIALS

The Contractor shall comply with the Specifications for type of work to be done.

PART 3 - EXECUTION

3.01 SEQUENCE OF CONSTRUCTION OPERATIONS

- A. The Contractor shall submit to the Engineer for review and acceptance a complete schedule (progress chart) of his proposed sequence of construction operations prior to commencement of work. However, the Engineer shall not accept a construction schedule that fails to utilize the entire time allocated for the construction of the Project. The Contractor shall schedule the various construction activities to complete the Project throughout the entire allotted time period. This schedule requirement in no way prevents the Contractor from completing the Project in a shorter time frame than scheduled. The construction schedule along with a cost breakdown schedule shall be submitted and approved by the Owner prior to the submittal of the first partial payment request in accordance with the General Conditions. A revised construction schedule shall be submitted to the Owner with each pay request. This revised schedule must be approved by the Owner prior to payment.
- B. **All existing utilities must remain in service until the new pump station, force main, and screening system are placed into service. Coordination with the Owner and Engineer will be required.** The Contractor shall develop a sequence of construction that avoids and/or minimizes disruption to the existing system. The Contractor shall provide proper notification and coordination to the Engineer and

Owner should a temporary disruption be anticipated or required. The Contractor shall submit a written request to the Engineer and Owner ten (10) days prior to any specific construction activity that disrupts existing operations. The Owner must pre-approve any construction activity that will cause a temporary shutdown of any existing water or sewer lines.

END OF SECTION 01015

SECTION 01025 - MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 WORK INCLUDED

The CONTRACTOR shall furnish all necessary labor, machinery, tools, apparatus, equipment, materials, services and other necessary supplies and perform all Work shown on the Drawings and/or described in the Specifications and Contract Documents at the unit or lump sum price.

1.02 COMPUTATION OF QUANTITIES

For estimating quantities, the appropriate "industry standard" method (where applicable) will be utilized. The ENGINEER can require the CONTRACTOR to provide a detailed itemization of the materials and labor required.

1.03 PROGRESS AND PAYMENT SCHEDULES (Also see Section 00700)

- A. Within fifteen (15) days after the date of formal execution of the Agreement, the CONTRACTOR shall prepare and submit to the ENGINEER, for approval, a *Construction Schedule* which depicts the CONTRACTOR'S plan for completing the Contract requirements and show work placement in dollars versus Contract time. The CONTRACTOR'S *Construction Schedule* must be approved by the ENGINEER before any payments will be made on this Contract. Smaller projects may not require a *Construction Schedule*. It is the Contractor's responsibility to contact the ENGINEER to inquire as to whether a schedule is required. In the absence of such communication, the CONTRACTOR shall prepare a *Construction Schedule*.
- B. Within fifteen (15) days after the date of formal execution of the Agreement, the CONTRACTOR shall prepare and submit to the ENGINEER, for approval, an *Application and Certificate for Payment*. The *Application and Certificate for Payment* shall depict the CONTRACTOR'S cost for completing the Contract requirements and show, by major unit of the project Work, the CONTRACTOR'S dollar value for the Work to be used as a basis for the periodic payments. The CONTRACTOR'S *Application and Certificate for Payment* must be approved by the ENGINEER before any payments will be made on this Contract.
- C. The ENGINEER'S decision as to sufficiency and completeness of the CONTRACTOR'S *Construction Schedule* and *Application and Certificate for Payment* will be final.
- D. The CONTRACTOR must make current, to the satisfaction of the ENGINEER, the *Construction Schedule* and *Application and Certificate for Payment* each time he requests a payment on this Contract.

- E. The CONTRACTOR'S *Construction Schedule* and *Application and Certificate for Payment* must be maintained at the construction site available for inspection and shall be revised to incorporate approved change orders as they occur.
- F. When the CONTRACTOR requests a payment on this Contract, it must be on the approved *Application and Certificate for Payment* form and be current. Further, the current *Application and Certificate for Payment* and *Construction Schedule* (both updated and revised) shall be submitted for review and approved by the ENGINEER before monthly payments will be made by the OWNER. The CONTRACTOR shall submit six (6) current copies of each (*Application and Certificate for Payment* and *Construction Schedule*) when requesting payment.

1.04 CONDITIONS FOR PAYMENT (See also Article 1.50/Section 00700)

- A. The OWNER will make payments for acceptable Work in place and materials properly stored on-site. The value of payment shall be as established on the approved *Application and Certificate for Payment* and *Construction Schedule*, EXCEPT the OWNER will retain ten percent (10%) of the Work in place and a percentage as hereinafter listed for items properly stored or untested.
- B. No payment will be made for stored materials unless a proper invoice from the supplier is attached to the pay request. Furthermore, no item whose value is less than \$1,000.00 will be considered as stored materials for pay purposes.
- C. Payment for equipment items shall be limited to ninety percent (90%) of their scheduled value (materials portion only) until they are set in place. Ninety percent (90%) payment for stored materials and equipment shall be contingent on proper on-site storage as recommended by the manufacturer or required by the ENGINEER.
- D. Payment for equipment items set in-place shall be limited to ninety percent (90%) of their scheduled value until they are ready for operation and have been certified by the manufacturer. Ninety percent (90%) payment for installed equipment shall be contingent on proper routine maintenance of the equipment in accordance with the manufacturer's recommendations.
- E. Payment for the labor portion of equipment items will be subject only to the degree of completeness and the appropriate retainage.
- F. Retainage is held at ten (10) percent of the Work throughout construction, the OWNER will not reduce the percent of retainage at any completion stage during construction.

1.05 CLAIMS FOR EXTRA WORK (See also Article 1.61/Section 00700)

- A. If the CONTRACTOR claims that any instructions by Drawings or otherwise involve extra cost, he shall give the ENGINEER written notice of said claim within ten (10) days after the receipt of such instructions, and in any event before proceeding to execute the

Work, stating clearly and in detail the basis of his claim or claims. No such claim shall be valid unless so made.

- B. Claims for additional compensation for extra Work, due to alleged errors in spot elevations, contour lines or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material or performing more Work than would be reasonably estimated from the Drawings and topographical maps issued.
- C. Any discrepancies which may be discovered between actual conditions and those represented by the topographical maps and Drawings shall at once be reported to the ENGINEER, and Work shall not proceed, except at the CONTRACTOR'S risk, until written instructions have been received by him from the ENGINEER.
- D. If, on the basis of the available evidence, the ENGINEER determines that an adjustment of the Contract Price or time is justifiable, the procedure shall then be as provided herein for "Changes in Work."
- E. By execution of this Contract, the CONTRACTOR warrants that he has visited the site of the proposed Work and fully acquainted himself with the conditions there existing relating to construction and labor, and that he fully understands the facilities, difficulties and restrictions attending the execution of the Work under this Contract. The CONTRACTOR further warrants that he has thoroughly examined and is familiar with the Drawings, Specifications and all other documents comprising the Contract. The CONTRACTOR further warrants that, by execution of this Contract, his failure when he was bidding on this Contract to receive or examine any form, instrument or document or to visit the site and acquaint himself with conditions there existing, in no way relieves him from any obligation under the Contract.

1.06 DETERMINATION OF THE VALUE OF EXTRA (ADDITIONAL) OR OMITTED WORK (See also, Article 1.62/Section 00700)

- A. The value of extra (additional) or omitted Work shall be determined in one or more of the following ways:
 - 1. On the basis of the actual cost of all the items of labor (including on-the-job supervision), materials and use of equipment plus a maximum of fifteen percent (15%) which shall cover the CONTRACTOR'S general supervision, overhead and profit. In case of subcontracts, the fifteen percent (15%) is interpreted to mean the subcontractor's supervision, overhead and profit, and an additional five percent (5%) may then be added to such costs to cover the General CONTRACTOR'S supervision, overhead and profit. The cost of labor shall include required insurance, taxes and fringe benefits. Equipment costs shall be based on current rental rates in the areas where the Work is being performed, but in no case shall such costs be greater than the current rates published by the Associated Equipment

- Distributors, Chicago, Illinois.
2. By estimate and acceptance in a lump sum.
 3. By unit prices named in the Contract or subsequently agreed upon.
- B. All extra (additional) Work shall be executed under the conditions of the original Contract. Any claim for extension of time shall be adjusted according to the proportionate increase or decrease in the final total cost of the Work unless negotiated on another basis.
- C. Except for over-runs in Contract unit price items, no extra (additional) Work shall be done except upon a written Change Order from the OWNER, and no claim on the part of the CONTRACTOR for pay for extra (additional) Work shall be recognized unless so ordered in writing by the OWNER. Unit price item overruns shall be limited to 130% of the quantity listed on the Bid form without prior approval from the ENGINEER.

PART 2 - PRODUCTS

2.01 GRAVITY SEWER LINES, LATERALS, AND FORCE MAINS

- A. Payment for gravity sewer lines will be made at the CONTRACT unit price per linear foot in place, which shall include compensation for furnishing pipe, trenching (including sawcutting and rock excavation), Class I bedding material, laying, jointing, temporary trench shoring, sheeting and bracing, initial backfill of Class I material over top of pipe, and all other appurtenances required but not specifically delineated herein.
- B. The quantity of sewer to be paid for shall be the length of pipe measured along the centerline of the completed pipeline without deducting the length of branches and fittings. The inside diameter of each manhole shall **not** be included in the measurement of the pipe.
- C. Payment for final backfill shall be included in this pay item except for bituminous material and concrete required in restoration of paved areas and defined in Sections 02510 and 02520. Bituminous binder and concrete shall be included in the pay item "Bituminous Pavement Replacement" and "Concrete Pavement Replacement", if applicable. Class II material (DGA) required in the restoration of gravel roadways and drives, if applicable, shall be included in this pay item and is not a separate pay item.
- D. Rock excavation is included in this pay item and will not be paid for separately.
- E. Payment for this item shall include the testing of the completed gravity and pressure sewer lines and any water, gas or other utility relocation if necessary.
- F. Payment for this item shall include any and all traffic regulation that may be necessary to complete the work.

- G. Payment for seeding and final clean-up including furnishing and placing topsoil, finish grading, seeding mulching and erosion control, removal of construction materials and debris, cleaning, and site restoration is included in this pay item.

2.02 STANDARD MANHOLES

Manholes, if applicable, as described in Section 02735 will be paid for at the CONTRACT unit price each and shall include the furnishing and installation of the precast concrete base, barrels, eccentric cone top section, stops, flexible pipe to manhole gasket, and cast iron frame and cover. Also included is excavation (including rock excavation), earth backfill, and all other materials not specifically delineated herein, but necessary to complete the construction of the manhole as shown on the DRAWINGS. Crushed stone backfill placed around the manhole in Class II trench situations is included in this pay item. Bituminous binder in restoration of paved areas shall be included in the pay item "Bituminous Pavement Replacement", if applicable. Class II material (DGA) in restoration of gravel drives and roadways shall be included in this pay item and is not a separate pay item.

2.03 COMBINATION AIR RELEASE VALVE ASSEMBLY

Payment for combination air release valve assembly will be made at the CONTRACT unit price each and shall be installed per the DRAWINGS including all appurtenances necessary to complete the WORK.

2.04 SEWER PUMP STATION AND CONTROLS

Payment for sewage pump station and controls will be made at the CONTRACT unit price each and shall be installed per the DRAWINGS including all appurtenances necessary to complete the WORK.

2.05 WETWELL AND VALVE VAULT

Payment for wetwell and valve vault will be made at the CONTRACT unit price each and shall be installed per the DRAWINGS including all appurtenances necessary to complete the WORK.

2.06 MAG METER VAULT

Payment for mag meter vault will be made at the CONTRACT unit price and shall be installed per the DRAWINGS including all appurtenances necessary to complete the WORK.

2.07 MISCELLANEOUS ELECTRIC

Payment for miscellaneous electric will be made at the CONTRACT unit price each and shall be installed per the DRAWINGS including all appurtenances necessary to complete

the WORK. This pay item will include but is not limited to furnishing and connecting all electrical systems including the pump controls, pressure transducers, magnetic flow meter, generator receptacle, control building systems, and all other electrical items including complete coordination with the electric utility.

2.08 CONNECT TO MANHOLE / FORCE MAIN / WATERLINE

Payment for connection to existing manhole/force main/waterline will be made at the CONTRACT unit price each and shall include connecting new sewer/manhole/waterline to the existing pipe per the DRAWINGS and all other appurtenances necessary to complete the WORK. **When connecting a new manhole to an existing gravity sewer it is the Contractor's responsibility to properly plan his/her approach and include these costs in the BID. Temporary bypass pumping shall be included in this item if needed. Coordination will be required with the Owner and Engineer. "Doghouse" manhole connections will NOT be permitted.**

2.09 ENCASEMENT PIPE

Payment for pipelines crossing roadways on the DRAWINGS, if applicable, shall include the respective encasement pipe bored under roadway and will be paid for at the CONTRACT unit price per linear foot of encasement pipe for the size and type, if applicable. This work shall include the encasement pipe, complete in place with fittings, blocking, spacers, and all items necessary for its construction and installation. Carrier pipe is paid separately under item 2.01.

2.10 GRAVEL DRIVE / CONCRETE PAD

Payment for gravel drive / concrete pad such as proposed entrance roads, parking lots, and walkways/pads in this CONTRACT shall be made at the CONTRACT unit price and shall include all appurtenances necessary to complete the WORK per the drawings and specifications.

2.11 CHAIN LINK FENCE WITH GATE

Payment for chain link fence with gate will be made at the CONTRACT unit price and shall include all appurtenances necessary to complete the WORK per the drawings and specifications.

2.12 BITUMINOUS PAVEMENT REPLACEMENT

Payment for bituminous pavement and/or pavement replacement will be paid for at the CONTRACT unit price per square yard, which shall include base, placement of bituminous binder, final pavement, compaction and all appurtenances necessary for a complete installation.

2.13 DEMOLITION / INSTALLATION OF SCREENING SYSTEM

Payment for demolition and installation of the screening system will be made at the CONTRACT lump sum price and shall be installed per the DRAWINGS including all appurtenances necessary to complete the WORK.

2.14 GENERAL CONDITIONS

Payment for General Conditions will be made at the CONTRACT lump sum price and shall include costs related to mobilization, demobilization, insurance, performance and payment bonds, and any other items required under bidding requirements, Contract forms and conditions of the Contract.

PART 3 - EXECUTION

3.01 PAY ITEMS

- A. The pay items listed hereinbefore refer to the items listed in the Bid Schedule and cover all of the pay items for this Contract.
- B. Any and all other items of Work listed in the Specifications or shown on the Drawings for this Contract shall be considered incidental to and included in those pay items.

3.02 QUANTITIES OF ESTIMATE

Wherever the estimated quantities of work to be done and materials to be furnished under this Contract are shown in any of the documents, including the Bid Proposal, they are given for use in comparing bids and the right is especially reserved except as herein otherwise specifically limited, to increase or diminish them as may be deemed reasonably necessary or desirable by the Owner to complete the Work contemplated by this Contract, and such increase or diminution shall not give cause for claims or liability for damages. The Engineer will not be financially responsible for any omissions from the Contract Documents and therefore not included by the Contractor in his proposal.

END OF SECTION 01025

SECTION 01030 - LABOR PROVISIONS

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall conform to all provisions of the U.S. Department of Labor, Latest Revisions, relative to wages and hours as they may apply to the work to be accomplished.

1.02 WAGE RATES

A copy of the appropriate Wage Determinations are included in these Contract Documents.

END OF SECTION 01030

"General Decision Number: KY20220058 05/06/2022

Superseded General Decision Number: KY20210058

State: Kentucky

Construction Type: Heavy

Counties: Adair, Barren, Casey, Clinton, Cumberland, Green, Hart, Knox, Laurel, Logan, Marion, McCreary, Metcalfe, Pulaski, Russell, Simpson, Taylor, Wayne and Whitley Counties in Kentucky.

HEAVY CONSTRUCTION PROJECTS (including sewer/water construction).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658.

Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

<p>If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:</p>	<p>. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$15.00 per hour (or</p>
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the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2022.

If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or all extended on or after January 30, 2022: listed determination, Executive Order 13658 generally applies to the contract. The contractor must pay covered workers at least \$11.25 per hour (or the applicable wage rate on this wage if it is higher) for all hours spent performing on that contract in 2022.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for

performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Modification Number	Publication Date
0	01/07/2022
1	02/25/2022
2	05/06/2022

* CARP0064-007 04/01/2022

	Rates	Fringes
CARPENTER (Form Work Only).....	\$ 30.84	22.19

ELEC0369-004 09/01/2021

	Rates	Fringes
LINE CONSTRUCTION		
Equipment Operator.....	\$ 36.17	17%+7.99
Groundman.....	\$ 23.81	17%+7.61
Lineman.....	\$ 40.51	17%+8.12

ENGI0181-010 07/01/2021

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1.....	\$ 34.80	17.85
GROUP 2.....	\$ 31.94	17.85
GROUP 4.....	\$ 31.62	17.85

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - Crane; Drill; Grader/Blade; Mechanic; Scraper

GROUP 2 - Bobcat/Skid Steer/Skid Loader; Forklift

GROUP 4 - Oiler

Operators on cranes with booms 150 feet and over (including jib) shall receive \$1.00 above Group 1 rate; 250 feet and over including jib shall receive \$1.50 above Class 1 rate.

Combination Rate: All crane operators operating cranes, where the length of the boom in combination with the length of the piling leads equal or exceeds 150 feet, shall receive \$1.00 above the Group 1 rate.

Employees assigned to work below ground level are to be paid 10% above basic wage rate. This does not apply to open cut work.

IRON0782-010 08/01/2021

	Rates	Fringes
IRONWORKER (Reinforcing & Structural)		
Projects over \$20,000,000.00.....	\$ 30.83	25.52
Projects under \$20,000,000.00.....	\$ 29.24	23.22

LABO0189-014 07/01/2021

	Rates	Fringes
LABORER		
Concrete Saw (Hand Held/Walk Behind).....	\$ 23.76	16.22
Concrete Worker.....	\$ 23.51	16.22

SUKY2011-014 06/25/2014

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 21.60	10.35
ELECTRICIAN.....	\$ 32.35	2.18
LABORER: Common or General.....	\$ 20.60	9.39
LABORER: Flagger.....	\$ 18.31	8.89
LABORER: Pipelayer.....	\$ 20.13	8.63
OPERATOR: Backhoe/Excavator/Trackhoe.....	\$ 23.60	12.65
OPERATOR: Bulldozer.....	\$ 21.72	7.45
OPERATOR: Loader.....	\$ 30.35	0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their

own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate

(weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and

non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator

(See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator

U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISIO"

SECTION 01040 - COORDINATION

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The Contractor shall coordinate the Work of all crafts, trades and subcontractors engaged on the Work, and he shall have final responsibility in regards to the schedule, workmanship and completeness of each and all parts of the Work.
- B. It shall be the Contractor's responsibility to ensure cooperation and coordination of all crafts, trades, subcontractors and others as they may be involved in the installation of work which adjoins, incorporates, precedes or follows the work of another. It shall be the Contractor's responsibility to point out areas of cooperation prior to execution of subcontract agreements and the assignment of the parts of the Work. Each craft, trade and subcontractor shall be made responsible to the Owner, for furnishing embedded items, giving directions for doing all cutting and fitting, making all provisions for accommodating the Work, and for protecting, patching, repairing and cleaning as required to satisfactorily perform the Work.
- C. The Contractor shall be responsible for all cutting, digging and other action of his subcontractors and workmen. Where such action impairs the safety or function of any structure or component of the Project, the Contractor shall make such repairs, alterations and additions as will, in the opinion of the Engineer, bring said structure or component back to its original design condition at no additional cost to the Owner.
- D. Each subcontractor is expected to be familiar with the General Requirements and all Sections of the Detailed Specifications for all other trades and to study all Drawings applicable to his work to the end that complete coordination between the trades will be affected. Each Contractor shall consult with the Engineer if conflicts exist on the Drawings.
- E. No extra compensation will be allowed to cover the cost of removing piping, conduits, etc., or equipment found encroaching on space required by others.

END OF SECTION 01040

SECTION 01045 - CUTTING AND PATCHING

PART 1 - GENERAL

1.01 SUMMARY

- A. Perform cutting and patching to properly complete work of the project in accordance with the Contract Documents. Cutting and patching may be required for connection to existing sewer lines, water lines, storm sewers, roadways, fencing, structures, and other existing improvements.
- B. Do not cut and/or patch in a manner that would result in a failure of the work to perform as intended, decreased energy performance, increased maintenance, decreased operational life, or decreased safety.

PART 2 - PRODUCTS

2.01 MATERIALS

Match existing materials for cutting and patching work with new materials conforming to project requirements.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Inspect conditions prior to work to identify scope and type of work required. Clean work area and areas affected by cutting and patching operations. Protect adjacent work. Notify Owner of work requiring interruption to building services or Owner's operations.
- B. Perform work with workmen skilled in the trades involved. Prepare sample area of each type of work for approval.
- C. Cutting: Use cutting tools, not chopping tools. Make neat holes. Minimize damage to adjacent work. Check for concealed utilities and structure before cutting.
- D. Patching: Make patches, seams, and joints durable and inconspicuous. Comply with tolerances for new work.
- E. The Engineer or his representative shall approve proper cutting and patching methods prior to the work being performed.

END OF SECTION 01045

SECTION 01070 - ABBREVIATIONS AND SYMBOLS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

Where any of the following abbreviations are used in the Contract Documents, they shall have the meaning set forth as follows.

1.02 QUALITY ASSURANCE

- A. For products or workmanship specified by association, trade or federal standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. The date of the standard is that in effect as of the Bid date, or date of Owner-Contractor Agreement when there are no bids, except when a specific date is specified.
- C. When required by individual Specifications section, obtain copy of standard. Maintain a copy at job site during submittals, planning and progress of the specific work, until Substantial Completion.

1.03 SCHEDULE OF REFERENCES

ACI	American Concrete Institute
AFBMA	Anti-Friction Bearing Manufacturers Association
AGMA	American Gear Manufacturers Association
IEEE	Institute of Electrical and Electronics Engineers, Inc.
AISC	American Institute of Steel Construction
ANS	American National Standard
ANSI	American National Standards Institute
API	American Petroleum Institute
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers

ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood-Preservers' Association
AWWA	American Water Works Association
IBR	Institute of Boiler and Radiator Manufacturers
IPS	Iron Pipe Size
NBS	National Bureau of Standards
NEC	National Electrical Code; latest edition
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
SMACNA	Sheet Metal and Air Conditioning Contractors National Association, Inc.
Fed. Spec.	Federal Specifications issued by the Federal Supply Service of the General Services Administration, Washington, DC
125-lb. ANS	American National Standard for Cast-Iron Pipe
250-lb. ANS	Flanges and Flanged Fittings, Designation B16.1-1975, for the appropriate class
AWG	American or Brown and Sharpe Wire Gage
NPT	National Pipe Thread
Stl. WG	U.S. Steel Wire, Washburn and Moen, American Steel and Wire or Roebling Gage
UL	Underwriters' Laboratories

END OF SECTION 01070

SECTION 01300 - SUBMITTALS

PART 1 - GENERAL

1.01 WORK INCLUDED

Shop drawing, descriptive literature, project data and samples (when samples are specifically requested) for all manufactured or fabricated items shall be submitted by the Contractor to the Engineer for examination and review in the form and in the manner required by the Engineer. All submittals shall be furnished in at least three (3) copies to be retained by the Engineer and shall be checked and reviewed by the Contractor before submission to the Engineer. The review of the submittal by the Engineer shall not be construed as a complete check, but will indicate only that the general method of construction and detailing is satisfactory. Review of such submittal will not relieve the Contractor of the responsibility for any errors, which may exist, as the Contractor shall be responsible for the dimensions and design of adequate connections, details, and satisfactory construction of all work.

1.02 RELATED REQUIREMENTS

- A. Section 00700 - General Conditions.
- B. Section 01720 - Project Record Documents (As-Builts).

1.03 DEFINITIONS

The term "submittals" shall mean shop drawings, manufacturer's drawings, catalog sheets, brochures, descriptive literature, diagrams, schedules, calculations, material lists, performance charts, test reports, office and field samples, and items of similar nature which are normally submitted for the Engineer's review for conformance with the design concept and compliance with the Contract Documents.

1.04 GENERAL CONDITIONS

Review by the Engineer of shop drawings or submittals of material and equipment shall not relieve the Contractor from the responsibilities of furnishing same of proper dimension, size, quantity, materials and all performance characteristics to efficiently perform the requirements and intent of the Contract Documents. Review shall not relieve the Contractor from 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. Review of shop drawings shall not be construed as releasing the Contractor from the responsibility of complying with the Specifications.

1.05 GENERAL REQUIREMENTS FOR SUBMITTALS

- A. Shop drawings shall be prepared by a qualified detailer. Details shall be identified by reference to sheet and detail numbers shown on Contract Documents. Where applicable, show fabrication, layout, setting and erection details. Shop drawings are defined as original drawings prepared by the Contractor, subcontractors, suppliers, or distributors performing work under this Contract. Shop drawings illustrate some portion of the work and show fabrication, layout, setting or erection details of equipment, materials and components. The Contractor shall, except as otherwise noted, have prepared the number of reviewed copies required for his distribution plus three (3) which will be retained by the Engineer and Owner. Shop drawings shall be folded to an approximate size of 8-1/2 inch x 11 inch and in such manner that the title block will be located in the lower right-hand corner of the exposed surface.
- B. Project data shall include manufacturer's standard schematic drawings modified to delete information that is not applicable to the Project, and shall be supplemented to provide additional information applicable to the Project. Each copy of descriptive literature shall be clearly marked to identify pertinent information as it applies to the Project. Submittals shall include descriptive literature, catalog cuts, dimensioned prints, installation drawings/instructions, operation and maintenance instructions. The data provided with the shop drawings shall be complete with respect to dimensions, materials of construction, wiring diagrams, and the like, to enable the Engineer to review the information as required.
- C. Operating and maintenance instructions and separate parts lists shall be provided with equipment submittals. Operating instructions shall incorporate a functional description of the entire system including the system schematics, which reflect "as built" instructions. Special maintenance requirements particular to the system shall be clearly defined along with special calibration and test procedures.
- D. The submittals shall identify special wrenches or other special tools necessary for assembling, disassembling, aligning and calibrating the equipment. These special wrenches and/or other special tools shall be provided in a kit and shall become the property of the Owner upon acceptance of the equipment.
- E. Where samples are required, they shall be adequate to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged. Provide sufficient size and quantity to clearly illustrate functional characteristics of product and material, with integrally related parts and attachment devices, along with a full range of color samples.
- F. All submittals shall be referenced to the applicable item, section and division of the Specifications, and to the applicable Drawing(s) or Drawing schedule(s) and shall be with transmittal forms and format provided by the Engineer.
- G. The Contractor shall review and check submittals, and indicate his review and

approval by initials and date.

- H. If the submittals deviate from the Contract Drawings and/or Specifications, the Contractor shall advise the Engineer, in letter of transmittal of the deviation and the reasons therefore. All changes shall be clearly marked on the submittal with a bold mark other than red. Any additional costs for modifications shall be borne by the Contractor.
- I. In the event the Engineer does not specifically reject the use of material or equipment at variance to that which is shown on the Drawings or specified, the Contractor shall, at no additional expense to the Owner, and using methods reviewed by the Engineer, make any changes to structures, piping, controls, electrical work, mechanical work, etc., that may be necessary to accommodate this equipment or material. Should equipment other than that on which design drawings are based be accepted by the Engineer, shop drawings shall be submitted detailing all modification work and equipment changes made necessary by the substituted item.
- J. Additional information on particular items, such as special drawings, schedules, calculations, performance curves, and material details, shall be provided when specifically requested in the technical Specifications.
- K. Submittals for all electrically operated items (including instrumentation and controls) shall include complete wiring diagrams showing lead, runs, number of wires, wire size, color coding, all terminations and connections, and coordination with related equipment.
- L. Equipment shop drawings shall indicate all factory or shop paint coatings applied by suppliers, manufacturers and fabricators; the Contractor shall be responsible for insuring the compatibility of such coatings with the field-applied paint products and systems.
- M. Fastener specifications of manufacturer shall be indicated on equipment shop drawings.
- N. Where manufacturer's brand names are given in the Specifications for building and construction materials and products, such as grout, bonding compounds, curing compounds, masonry cleaners, waterproofing solutions and similar products, the Contractor shall submit names and descriptive literature of such materials and products he proposes to use in this Contract.
- O. No material shall be fabricated or shipped unless the applicable drawings or submittals have been reviewed by the Engineer and returned to the Contractor.
- P. All bulletins, brochures, instructions, parts lists, and warranties packaged with and accompanying materials and products delivered to and installed in the Project shall be saved and transmitted to the Owner through the Engineer.

- Q. All submittals shall be made by the use of a multi-copy transmittal form supplied by the Engineer. All applicable blanks on the form shall be filled in with the appropriate data.

1.06 CONTRACTOR RESPONSIBILITIES

- A. Verify field measurements, field construction criteria, catalog numbers and similar data.
- B. Coordinate each submittal with requirements of Work and Contract Documents.
- C. Notify Engineer, in writing at time of submission, of deviations in submittals from requirements of Contract Documents.
- D. Begin no work, and have no material or products fabricated or shipped which required submittals until return of submittals with Engineer's stamp and initials or signature indicating review.

END OF SECTION 01300

SECTION 01400 - QUALITY CONTROL

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Work of all crafts and trades shall be laid out to lines and elevations as established by the Contractor from the Drawings or from instructions by the Engineer.
- B. Unless otherwise shown, all work shall be plumb and level, in straight lines and true planes, parallel or square to the established lines and levels. The Work shall be accurately measured and fitted to tolerance as established by the best practices of the crafts and trades involved, and shall be as required to fit all parts of the Work carefully and neatly together.
- C. All equipment, materials and articles incorporated into the Work shall be new and of comparable quality as specified. All workmanship shall be first-class and shall be performed by mechanics skilled and regularly employed in their respective trades.
- D. The Contractor shall determine that the equipment he proposes to furnish can be brought into the facility and installed in the space available. Equipment shall be installed so that all parts are readily accessible for inspection and maintenance.

1.02 WORKMANSHIP

Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.

1.03 MANUFACTURERS' INSTRUCTION

Comply with manufacturer's instructions in full detail as to shipping, handling, storing, installing, start-up and operation.

1.04 TESTING SERVICES

- A. Tests, inspections and certifications of materials, equipment, subcontractors or completed work, as required by the various sections of the Specifications and as shown on the Drawings, except as otherwise noted, shall be provided by the Contractor and all costs shall be included in the Contract Price.
- B. The Contractor shall submit to the Owner for approval the name of the independent testing laboratory to be employed by the Contractor.
- C. Contractor shall deliver written notice to the Engineer at least two (2) work days in advance of any inspections or tests to be made at the Project site. All inspections or

tests to be conducted in the field shall be done in the presence of the Owner or his representative.

- D. Certifications by independent testing laboratories shall include properly attested copies of the data with scientific procedures and test results.

END OF SECTION 01400

SECTION 01535 - PROTECTION OF INSTALLED WORK

PART 1 - GENERAL

1.01 WORK INCLUDED

Protection for products, including Owner-provided products, after installation.

1.02 RELATED REQUIREMENTS

Division 1 - General Requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 PROTECTION AFTER INSTALLATION

- A. Protect installed products and control traffic in immediate area to prevent damage from subsequent operations.
- B. Restrict traffic of any kind across planted lawn and landscape areas.

END OF SECTION 01535

SECTION 01540 - SECURITY

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The Project area must remain safely accessible to Owner's personnel; however, the Contractor will provide any non-interfering security he deems necessary to protect his work, equipment, etc.
- B. Provide an adequate system to secure the Project area at all times, especially during non-construction periods; the Contractor shall be solely responsible for taking proper security measures.

1.02 COSTS

Contractor shall pay for all costs for protection and security systems.

END OF SECTION 01540

SECTION 01550 - ACCESS ROADS AND PARKING AREAS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Access roads.
- B. Temporary parking.
- C. Existing pavements and parking areas.
- D. Permanent pavements and parking areas.
- E. Maintenance.
- F. Removal and repair.

1.02 RELATED REQUIREMENTS

- A. Section 01045 - Cutting and Patching.
- B. Section 01510 - Temporary Utilities.

PART 2 - PRODUCTS

2.01 MATERIALS

For temporary construction: Contractor's option but must be approved by the Owner.

PART 3 - EXECUTION

3.01 PREPARATION

Clear areas, provide proper surface and storm drainage of premises and adjacent areas. Install erosion protection.

3.02 ACCESS ROADS

- A. Construct temporary all-weather access roads from public thoroughfares to serve construction area, of a width and load-bearing capacity to provide unimpeded traffic for construction purposes.
- B. Construct temporary bridges and/or culverts to span low areas and allow unimpeded

drainage.

- C. Extend and relocate as work progress requires, and provide detours as necessary for unimpeded traffic flow.
- D. Locate temporary access roads as approved by the Owner and/or the Engineer.
- E. Provide and maintain access to all Owner facilities.

3.03 TEMPORARY PARKING

Construct temporary parking areas to accommodate use of construction personnel in an area acceptable to the Owner and/or the Engineer. Pay all costs relating to temporary parking.

3.04 MAINTENANCE

- A. Maintain traffic and parking areas in a sound condition, free of excavated material, construction equipment, products, mud, snow and ice. Use whatever dust control measures required to prevent airborne particles.
- B. Maintain existing paved areas used for construction; promptly repair breaks, potholes, low areas, standing water and other deficiencies to maintain paving and drainage in original and/or specified condition.

3.05 REMOVAL AND REPAIR

- A. Remove temporary materials and construction when permanent facilities are usable as directed by the Engineer.
- B. Remove underground work and compacted materials to a depth of two (2) feet; fill and grade site as specified.
- C. Repair existing permanent facilities damaged by usage to original and/or specified condition.

END OF SECTION 01550

SECTION 01560 - TEMPORARY CONTROLS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Dust control.
- B. Erosion and sediment control.

1.02 RELATED REQUIREMENTS

- A. Section 01510 - Temporary Utilities.
- B. Section 01565 - Erosion and Sediment Control.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 DUST CONTROL

Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere. Provide spraying of dust with water so no dust leaves the site.

3.02 EROSION AND SEDIMENT CONTROL

- A. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
- B. Minimize amount of bare soil exposed at one time.
- C. Provide temporary measures such as berms, dikes, drains, hay bales, gabions, etc., as directed by the Engineer so as to minimize siltation due to runoff.
- D. Construct fill and waste areas by selective placement to avoid erosive exposed surface of silts or clays.
- E. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

END OF SECTION 01560

SECTION 01565 - EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The Contractor shall do all Work and take all measures necessary to control soil erosion resulting from construction operations, shall prevent the flow of sediment from the construction site, and shall contain construction materials (including excavation and backfill) within his protected working area so as to prevent damage to the adjacent wetlands and water courses.
- B. The Contractor shall not employ any construction method that violates a rule, regulation, guideline or procedure established by Federal, State or local agencies having jurisdiction over the environmental effects of construction.
- C. Pollutants such as chemicals, fuels, lubricants, bitumen, raw sewage and other harmful waste shall not be discharged into or alongside of any body of water or into natural or man-made channels leading thereto.

PART 2 - PRODUCTS

2.01 MATERIALS

Bales may be hay or straw, and shall be reasonably clean and free of noxious weeds and deleterious materials. Filter fabric for sediment traps shall be of suitable materials acceptable to the Engineer.

PART 3 - EXECUTION

3.01 METHODS OF CONSTRUCTION

- A. The Contractor shall use any of the acceptable methods necessary to control soil erosion and prevent the flow of sediment to the maximum extent possible. These methods shall include, but not be limited to, the use of water diversion structures, diversion ditches and settling basins.
- B. Construction operations shall be restricted to the areas of work indicated on the Drawings and to the area which must be entered for the construction of temporary or permanent facilities. The Engineer has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and fill operations and to direct the Contractor to provide immediate permanent or temporary pollution control measures to prevent contamination of the wetlands and adjacent watercourses. Such work may involve the construction of temporary berms, dikes, dams, sediment basins, slope drains, and use of temporary mulches, mats, or other

control devices or methods as necessary to control erosion.

- C. Excavated soil material shall not be placed adjacent to the wetlands or watercourses in a manner that will cause it to be washed away by high water or runoff. Earth berms or diversions shall be constructed to intercept and divert runoff water away from critical areas. Diversion outlets shall be stable or shall be stabilized by means acceptable to the Engineer. If for any reason construction materials are washed away during the course of construction, the Contractor shall remove those materials from the fouled areas as directed by the Engineer.
- D. For Work within easements or rights-of-way, all materials used in construction such as excavation, backfill, roadway, and pipe bedding and equipment shall be kept within the limits of these easements or rights-of-way.
- E. The Contractor shall not pump silt-laden water from trenches or other excavation into the wetlands, or adjacent watercourses. Instead, silt-laden water from his excavations shall be discharged within areas surrounded by baled hay or into sediment traps or ensure that only sediment-free water is returned to the watercourses. Damage to vegetation by excessive watering or silt accumulation in the discharge area shall be avoided.
- F. Prohibited construction procedures include, but are not limited to the following:
 - 1. Dumping of spoil material into any streams, wetlands, surface waters, or unspecified locations.
 - 2. Indiscriminate, arbitrary, or capricious operation of equipment in wetlands or surface waters.
 - 3. Pumping of silt-laden water from trenches or excavations into surface waters, or wetlands.
 - 4. Damaging vegetation adjacent to or outside of the construction area limits.
 - 5. Disposal of trees, brush, debris, paints, chemicals, asphalt products, concrete curing compounds, fuels, lubricants, insecticides, washwater from concrete trucks or hydroseeders, or any other pollutant in wetlands, surface waters, or unspecified locations.
 - 6. Permanent or unauthorized alteration of the flow line of any stream.
 - 7. Open burning of debris from the construction work.
- G. Any temporary working roadways required shall be clean fill approved by the Engineer. In the event fill is used, the Contractor shall take every precaution to prevent the fill from mixing with native materials of the site. All such foreign fill materials shall be removed from the site following construction.

3.02 EROSION CHECKS

The Contractor shall furnish and install baled hay or straw erosion checks surrounding the base of all deposits of stored excavated material outside of the disturbed area, and where indicated by the Engineer. Checks located surrounding stored material shall be located approximately 6 feet from that material. Bales shall be held in place with two 2 inch by 2 inch by 3 feet wooden stakes. Each bale shall be butted tightly against the adjoining bale to preclude short circuiting of the erosion check.

END OF SECTION 01565

SECTION 01570 - TRAFFIC REGULATION

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Construction parking control.
- B. Flagmen.
- C. Flares and lights.
- D. Haul routes.
- E. Removal.

PART 2 - PRODUCTS

2.01 SIGNS AND DEVICES

- A. Traffic Cones and Drums, Flares and Lights: As approved by local jurisdictions.
- B. Flagman Equipment: As required by local jurisdictions.

PART 3 - EXECUTION

3.01 CONSTRUCTION PARKING CONTROL

- A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles and Owner's operations.
- B. Monitor parking of construction personnel's vehicles in existing facilities. Maintain vehicular access to and through parking areas.
- C. Prevent parking on or adjacent to access roads or in non-designated areas.

3.02 TRAFFIC CONTROL

- A. Whenever and wherever, in the Engineer's opinion, traffic is sufficiently congested or public safety is endangered, Contractor shall furnish uniformed officers to direct traffic and to keep traffic off the highway area affected by construction operations.
- B. Contractor shall abide by county and state regulations governing utility construction work.

- C. Traffic control shall be provided according to the Kentucky Department of Highways Manual on Uniform Traffic Control Devices for Streets and Highways.

3.03 FLAGMEN

Provide trained and equipped flagmen to regulate traffic when construction operations or traffic encroach on public traffic lanes.

3.04 FLARES AND LIGHTS

Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

3.05 HAUL ROUTES

- A. Consult with authorities, establish public thoroughfares to be used for haul routes and site access.
- B. Confine construction traffic to designated haul routes.
- C. Provide traffic control at critical areas of haul routes to regulate traffic and minimize interference with public traffic.

3.06 REMOVAL

Remove equipment and devices when no longer required.

END OF SECTION 01570

SECTION 01600 - MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 STORAGE OF MATERIALS AND EQUIPMENT

All excavated materials and equipment to be incorporated in the Work shall be placed so as not to injure any part of the Work or existing facilities and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the Work. Materials and equipment shall be kept neatly piled and compactly stored in such locations as will cause a minimum of inconvenience to public travel and adjoining owners, tenants and occupants.

1.02 HANDLING AND DISTRIBUTION

- A. The Contractor shall handle, haul, and distribute all materials and all surplus materials on the different portions of the Work, as necessary or required; shall provide suitable and adequate storage room for materials and equipment during the progress of the Work, and be responsible for the protection, loss of, or damage to materials and equipment furnished by him, until final completion and acceptance of the Work.
- B. Storage and demurrage charges by transportation companies and vendors shall be borne by the Contractor.

1.03 MATERIALS, SAMPLES, INSPECTION

- A. Unless otherwise expressly provided on the Drawings or in any of the other Contract Documents, only new materials and equipment shall be incorporated in the Work. All materials and equipment furnished by the Contractor to be incorporated in the Work shall be subject to the inspection of the Engineer. No material shall be processed or fabricated for the Work or delivered to the Work site without prior concurrence of the Engineer.
- B. As soon as possible after execution of the Agreement, the Contractor shall submit to the Engineer the names and addresses of the manufacturers and suppliers of all materials and equipment he proposes to incorporate into the Work. When shop and working drawings are required as specified below, the Contractor shall submit prior to the submission of such drawings, data in sufficient detail to enable the Engineer to determine whether the manufacturer and/or the supplier have the ability to furnish a product meeting the Specifications. As requested, the Contractor shall also submit data relating to the materials and equipment he proposes to incorporate into the Work in sufficient detail to enable the Engineer to identify and evaluate the particular product

and to determine whether it conforms to the Contract requirements. Such data shall be submitted in a manner similar to that specified for submission of shop and working drawings.

- C. Facilities and labor for the storage, handling, and inspection of all materials and equipment shall be furnished by the Contractor. Defective materials and equipment shall be removed immediately from the site of the Work.
- D. If the Engineer so requires, either prior to or after commencement of the Work, the Contractor shall submit samples of materials for such special tests as the Engineer deems necessary to demonstrate that they conform to the Specifications. Such samples, including concrete test cylinders, shall be furnished, taken, stored, packed, and shipped by the Contractor as directed. The Contractor shall furnish suitable molds for and make the concrete test cylinders. Except as otherwise expressly specified, the Contractor shall make arrangements for, and pay for, the tests.
- E. All samples shall be packed so as to reach their destination in good condition, and shall be labeled to indicate the material represented, the name of the building or work and location for which the material is intended, and the name of the Contractor submitting the sample. To ensure consideration of samples, the Contractor shall notify the Engineer by letter that the samples have been shipped and shall properly describe the samples in the letter. The letter of notification shall be sent separate from and should not be enclosed with the samples.
- F. The Contractor shall submit data and samples, or place his orders, sufficiently early to permit consideration, inspection and testing before the materials and equipment are needed for incorporation in the Work. The consequences of his failure to do so shall be the Contractor's sole responsibility.
- G. In order to demonstrate the proficiency of workmen, or to facilitate the choice among several textures, types, finishes, surfaces, etc., the Contractor shall provide such samples of workmanship of wall, floor, finish, etc., as may be required.
- H. When required, the Contractor shall furnish to the Engineer triplicate sworn copies of manufacturer's shop or mill tests (or reports from independent testing laboratories) relative to materials, equipment performance ratings, and concrete data.
- I. After review of the samples, data, etc., the materials and equipment used on the Work shall in all respects conform therewith.

END OF SECTION 01600

SECTION 01620 - STORAGE AND PROTECTION

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. General storage.
- B. Enclosed storage.
- C. Exterior storage.
- D. Maintenance of storage.

1.02 RELATED REQUIREMENTS

Division 1 - General Requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 GENERAL STORAGE

- A. Store products, immediately on delivery, in accordance with manufacturer's instructions, with seals and labels intact. Protect until installed.
- B. Arrange storage in a manner to provide access for maintenance of stored items and for inspection.

3.02 ENCLOSED STORAGE

- A. Store products, subject to damage by the elements, in substantial weathertight enclosures.
- B. Maintain temperature and humidity within ranges stated in manufacturer's instructions.
- C. Provide humidity control and ventilation for sensitive products as required by manufacturer's instructions.
- D. Store unpacked and loose products on shelves, in bins, or in neat groups of like items.
- E. The OWNER will not be responsible for providing closed storage when needed. This is the responsibility of the Contractor.

3.03 EXTERIOR STORAGE

- A. Provide substantial platforms, blocking, or skids, to support fabricated products above ground; slope to provide drainage. Protect products from soiling and staining.
- B. For products subject to discoloration or deterioration from exposure to the elements, cover with impervious sheet material. Provide ventilation to avoid condensation.
- C. Store loose granular materials on clean, solid surfaces such pavement, or on rigid sheet materials, to prevent mixing with foreign matter.
- D. Provide surface drainage to prevent erosion and ponding of water.
- E. Prevent mixing of refuse or chemically injurious materials.

3.04 MAINTENANCE OF STORAGE

- A. Periodically, inspect stored products on a scheduled basis. Maintain a log of inspections, make available to Engineer on request.
- B. Verify that storage facilities comply with manufacturer's product storage requirements.
- C. Verify that manufacturer required environmental conditions are maintained continually.
- D. Verify that surfaces of products exposed to the elements are not adversely affected. Weathering of finishes is unacceptable under the requirements of the Contract Documents.

3.05 MAINTENANCE OF EQUIPMENT STORAGE

- A. For mechanical and electrical equipment in long-term storage, provide manufacturer's service instructions to accompany each item, with notice of enclosed instructions shown on exterior of package.
- B. Service equipment on a regularly scheduled basis, in accordance with the manufacturer's recommendations, maintaining a log of services; submit as a record document.

END OF SECTION 01620

SECTION 01700 - PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 RELATED REQUIREMENTS

- A. Section 00700 - General Conditions.
- B. Section 01710 - Cleaning.
- C. Section 01720 - Project Record Documents.

1.02 SUBSTANTIAL COMPLETION

- A. Contractor:
 - 1. Submit written certification to Engineer that project is substantially complete.
 - 2. Submit list of major items to be completed or corrected.
- B. Engineer will make an inspection within seven days after receipt of certification, together with the Owner's representative.
- C. Should Engineer consider that work is substantially complete:
 - 1. Contractor shall prepare, and submit to Engineer, a list of the items to be completed or corrected, as determined by on-site observation.
 - 2. Engineer will prepare and issue a Certificate of Substantial Completion, containing:
 - a. Date of Substantial Completion.
 - b. Contractor's list of items to be completed or corrected, verified and amended by Engineer.
 - c. The time within which Contractor shall complete or correct work of listed items.
 - d. Time and date Owner will assume possession of work or designated portion thereof.
 - e. Responsibilities of Owner and Contractor for:
 - (1) Insurance.
 - (2) Utilities.
 - (3) Operation of mechanical, electrical and other systems.
 - (4) Maintenance and cleaning.
 - (5) Security.
 - f. Signatures of:
 - (1) Engineer.
 - (2) Contractor.
 - (3) Owner.

3. Contractor: Complete work listed for completion or correction, within designated time.
- D. Should Engineer consider that work is not substantially complete:
1. He shall immediately notify Contractor, in writing, stating reasons.
 2. Contractor: Complete work, and send second written notice to Engineer, certifying that Project, or designated portion of project is substantially complete.
 3. Engineer will re-review work.

1.03 FINAL INSPECTION

- A. Contractor shall submit written certification that:
1. Contract Documents have been reviewed.
 2. Project has been inspected for compliance with Contract Documents.
 3. Work has been completed in accordance with Contract Documents.
 4. Equipment and systems have been tested in presence of Owner's representative and are operational.
 5. Project is completed and ready for final inspection.
- B. Engineer will make final on-site observation/review within seven (7) days after receipt of certification.
- C. Should Engineer consider that work is finally complete in accordance with requirements of Contract Documents, he shall request Contractor to make Project Closeout submittals.
- D. Should Engineer consider that work is not finally complete:
1. He shall notify Contractor, in writing, stating reasons.
 2. Contractor shall take immediate steps to remedy the stated deficiencies, and send second written notice to Engineer certifying that work is complete.
 3. Engineer will re-review the work.

1.04 FINAL CLEANING UP

The work will not be considered as completed and final payment made until all final cleaning up has been done by the Contractor in a manner satisfactory to the Engineer. See Section 01710 for detailed requirements.

1.05 CLOSEOUT SUBMITTALS

- A. Project Record Documents: to requirements of Section 01720.
- B. Operation and Maintenance Data: to requirements of particular technical specifications and Section 01730.
- C. Warranties and Bonds: to requirements of particular technical specifications and

Section 01740.

1.06 INSTRUCTION

Instruct Owner's personnel in operation of all systems, mechanical, electrical and other equipment.

1.07 FINAL APPLICATION FOR PAYMENT

Contractor shall submit final applications in accordance with requirements of General Conditions.

1.08 FINAL CERTIFICATE FOR PAYMENT

- A. Engineer will issue final certificate in accordance with provisions of General Conditions.
- B. Should final completion be materially delayed through no fault of Contractor, Engineer may issue a Semi-final Certificate for payment.

END OF SECTION 01700

SECTION 01710 - CLEANING

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. On a continuous basis, maintain premises free from accumulations of waste, debris, and rubbish, caused by operations.
- B. At completion of Work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean all sight-exposed surfaces; leave Project clean and ready for occupancy.

1.02 RELATED REQUIREMENTS

- A. Section 01045 - Cutting and Patching.
- B. Section 01700 - Project Closeout.
- C. Cleaning for Specific Products or Work: Specification Section for that work.

1.03 SAFETY REQUIREMENTS

- A. Hazards control:
 - 1. Store volatile wastes in covered containers, and remove from premises daily.
 - 2. Prevent accumulation of wastes which create hazardous conditions.
 - 3. Provide adequate ventilation during use of volatile or noxious substances.
- B. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - 1. Do not burn or bury rubbish and waste materials on Project site without written permission from the Owner.
 - 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 3. Do not dispose of wastes into streams or waterways.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
- B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 - EXECUTION

3.01 DURING CONSTRUCTION

- A. Execute cleaning to ensure that building, grounds and public properties are maintained free from accumulations of waste materials and rubbish.
- B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
- C. At reasonable intervals but no less than once every two weeks during progress of Work, clean site and public properties, and dispose of waste materials, debris and rubbish.
- D. Provide on-site containers for collection of waste materials, debris and rubbish.
- E. Remove waste materials, debris and rubbish from site and legally dispose of at public or private dumping areas off Owner's property.
- F. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.
- G. The Contractor shall thoroughly clean all materials and equipment installed.

3.02 FINAL CLEANING

- A. Employ experienced workmen, or professional cleaners, for final cleaning.
- B. In preparation for substantial completion, conduct final inspection of sight-exposed interior and exterior surface, and of concealed spaces.
- C. Repair, patch and touch up marred surfaces to specified finish, to match adjacent surfaces.
- D. Broom clean paved surfaces; rake clean other surfaces of grounds.
- E. Maintain cleaned areas until Project, or portion thereof, is occupied by Owner.
- F. The Contractor shall restore or replace existing property or structures as promptly and practicable as work progresses.

END OF SECTION 01710

SECTION 01720 - PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1.01 RELATED REQUIREMENTS

- A. Section 00700 - General Conditions.
- B. Section 01300 - Submittals.

1.02 MAINTENANCE OF DOCUMENTS

- A. Maintain at job site, one copy of:
 - 1. Contract Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Reviewed Shop Drawings.
 - 5. Change Orders.
 - 6. Other Modifications to Contract.
- B. Store documents in approved location, apart from documents used for construction.
- C. Provide files and racks for storage of documents.
- D. Maintain documents in clean, dry legible condition.
- E. Do not use record documents for construction purposes.
- F. Make documents available at all times for inspection by Engineer and Owner.

1.03 MARKING DEVICES

Provide colored pencil or felt-tip marking pen for all marking.

1.04 RECORDING

- A. Label each document "RECORD DRAWING" in 2-inch high printed letters.
- B. Keep record documents current.
- C. Do not permanently conceal any work until required information has been recorded.

- D. Contract Drawings: Legibly mark to record actual construction:
 - 1. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
 - 2. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
 - 3. Field changes of dimension and detail.
 - 4. Changes made by Change Order or Field Order.
 - 5. Details not on original Contract Drawings.

- E. Specifications and Addenda: Legibly mark up 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 Change Order or Field Order.
 - 3. Other matters not originally specified.

- F. Shop Drawings: Maintain as record documents; legibly annotate Shop Drawings to record changes made after review.

1.05 SUBMITTAL

- A. At completion of project, deliver record documents to Engineer.

- 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.
 - 5. Certification that each document as submitted is complete and accurate.
 - 6. Signature of Contractor or his authorized representative.

END OF SECTION 01720

SECTION 01730 - OPERATING AND MAINTENANCE DATA

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Compile product data and related information appropriate for Owner's maintenance and operation of equipment furnished under the contract. Prepare operating and maintenance data as specified.
- B. Instruct Owner's personnel in the maintenance and operation of equipment and systems as outlined herein.
- C. In addition to maintenance and operations data, the manufacturer's printed recommended installation practice shall also be included. If not part of the operations and maintenance manual, separate written installation instructions shall be provided, serving to assist the Contractor in equipment installation.

1.02 RELATED REQUIREMENTS

- A. Section 00700 - General Conditions.
- B. Section 01300 - Submittals.
- C. Section 01720 - Project Record Documents.
- D. Section 01740 - Warranties and Bonds.

1.03 MAINTENANCE AND OPERATIONS MANUAL

Every piece of equipment furnished and installed shall be provided with two (2) complete maintenance and operations manuals. These shall be detailed in instructions to the Owner's personnel. They shall be attractively bound for the Owner's records.

The manuals shall be submitted to the Engineer for review as to adequacy and completeness. After approval the Contractor shall store all manuals until the completion of the project or until requested by the Engineer. The manuals will be stored and delivered to the Engineer in an organized format.

1.04 FORM OF SUBMITTALS

- A. Prepare data in the form of an instructional manual for use by Owner's personnel.

- B. Format:
1. Size: 8-1/2 x 11 in.
 2. Paper: 20 pound minimum, white, for typed pages.
 3. Text: Manufacturer's printed data, or neatly typewritten.
 4. Drawings:
 - a. Provide reinforced punched binder tab, bind with text.
 - b. Fold large drawings to the size of the text pages where feasible.
 - c. For all drawings included within manuals, furnish a 8 mil mylar copy in standard size drawings 36" x 24", 8" x 16" or 8-1/2" x 11".
 - d. For flow or piping diagrams that cannot be detailed on the standard size drawings, a larger, appropriate size drawing may be submitted.
 5. Provide fly-leaf for each separate product, or each piece of operating equipment.
 - a. Provide typed description of product, and major component parts of equipment.
 - b. Provide indexed tabs.
 6. Cover: Identify each volume with types or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS". List:
 - a. Title of Project.
 - b. Identity of separate structure as applicable.
 - c. Identity of general subject matter covered in the manual.
- C. Binders:
1. Commercial quality, durable and cleanable, 3-hole, 3" or 4" post type binders, with oil and moisture resistant hard covers.
 2. When multiple binders are used, correlate the data into related consistent grouping.
 3. Labeled on the front cover and side of each binder shall be the name of the Contract, the Contract Number and Volume Number.

1.05 CONTENT OF MANUAL

- A. Neatly typewritten table of contents for each volume, arranged in systematic order.
1. Contractor, name of responsible principal, address and telephone number.
 2. A list of each product required to be included, indexed to the content of the volume.
 3. List, with each product, the name, address and telephone number of:
 - a. Subcontractor or installer.
 - b. Maintenance contractor, as appropriate.
 - c. Identify the area of responsibility of each.
 - d. Local source of supply for parts and replacement.
 4. Identify each product by product name and other identifying symbols as set forth in Contract Documents.

- B. Product Data:
1. Include only those sheets which are pertinent to the specific product. References to other sizes and types or models of similar equipment shall be deleted or lined out.
 2. Annotate each sheet to:
 - a. Clearly identify the specific product or part installed.
 - b. Clearly identify the data applicable to the installation.
 - c. Provide a parts list for all new equipment items, with catalog numbers and other data necessary for ordering replacement parts.
 - d. Delete references to inapplicable information.
 3. Clear and concise instructions for the operation, adjustment, lubrication, and other maintenance of the equipment including a lubrication chart.
- C. Drawings:
1. Supplement product data with drawings as necessary to clearly illustrate:
 - a. Relations of component parts of equipment and systems.
 - b. Control and flow diagrams.
 2. Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation.
 3. Do not use Project Record Documents as maintenance drawings.
- D. Written text, as required to supplement product data for the particular installation:
1. Organize in a consistent format under separate headings for different procedures.
 2. Provide a logical sequence of instructions for each procedure.
- E. Copy of each warranty, bond and service contract issued: Provide information sheet for Owner's personnel.
1. Proper procedures in the event of failure.
 2. Instances which might affect the validity of warranties or bonds.
- F. These manuals shall be submitted to the Engineer for review at the same time that the equipment to which it pertains is delivered at the site. The manuals must be approved by the Engineer before final payment on the equipment is made.

END OF SECTION 01730

SECTION 01740 - WARRANTIES AND BONDS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Compile specified warranties and bonds.
- B. Compile specified service and maintenance contracts.
- C. Co-execute submittals when required.
- D. Review submittals to verify compliance with Contract Documents.

1.02 RELATED REQUIREMENTS

- A. Bid Bond.
- B. Performance and Payment Bonds.
- C. Guaranty.
- D. General Warranty of Construction.
- E. Warranties and Bonds required for specific products: As listed in other Specification sections.

1.03 (NOT USED)

1.04 SUBMITTALS REQUIREMENTS

- A. Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers and subcontractors.
- B. Furnish two (2) original signed copies.
- C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.
 - 1. Product, equipment or work item.
 - 2. Firm name, address and telephone number.
 - 3. Scope.
 - 4. Date of beginning of warranty, bond or service and maintenance contract.
 - 5. Duration of warranty, bond or service and maintenance contract.
 - 6. Provide information for Owner's personnel:
 - a. Proper procedure in case of failure.

- b. Instances which might affect the validity of warranty or bond.
- 7. Contractor name, address and telephone number.

1.05 FORM OF SUBMITTALS

- A. Prepare in duplicate packets.
- B. Format:
 - 1. Size 8 1/2-inch x 11 inches, punch sheets for 3-ring binder: Fold larger sheets to fit into binders.
 - 2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS". List:
 - a. Title of Project.
 - b. Name of Contractor.
- C. Binders: Commercial quality, three-ring, with durable and cleanable plastic covers.

1.06 TIME OF SUBMITTALS

- A. For equipment or component parts of equipment put into service during progress of construction: Submit documents within ten (10) days after inspection and acceptance.
- B. Otherwise, make submittals within ten (10) days after date of substantial completion, prior to final request for payment.
- C. For items of work, where acceptance is delayed materially beyond the Date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing the date of acceptance as the start of the warranty period.

1.07 SUBMITTALS REQUIRED

Submit warranties, bonds, service and maintenance contracts as specified in the respective sections of the Specifications. Additionally, the Contractor shall warrant the entire contract, including all concrete, paving, building, plumbing, HVAC, mechanical and electrical equipment to be free from defects in design and installation for one (1) year from the date of startup. In the event a component fails to perform as specified or is proven defective in service during the warranty period, the Contractor shall repair the defect without cost to the Owner.

END OF SECTION 01740

Division 2 – Site Work

SECTION 02150 - SHORING AND BRACING

PART 1 - GENERAL

1.01 SUMMARY

- A. Shore and brace sidewalls in deep excavations with steel sheet, soldier piles or timber lagging as required to protect existing buildings, utilities, roadways, and improvements. Prevent cave-ins, loss of ground, or damage to people and property.
- B. Maintain shoring and bracing during construction activities, and remove shoring and bracing if practical when construction and filling is complete.

1.02 SUBMITTALS

Submit for approval shop drawings and information on methods proposed for use.

1.03 QUALITY ASSURANCE

Comply with governing codes and regulations. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Sheet Steel: Heavy-gauge steel sheet suitable for service.
- B. Soldier Piles: Steel H-beams in serviceable condition.
- C. Timber Lagging: Heavy timber pressure treated with wood preservative.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install in proper relation with adjacent construction. Coordinate with work of other sections.
- B. Locate shoring and bracing to avoid permanent construction. Anchor and brace to prevent collapse.

END OF SECTION 02150

SECTION 02221 - ROCK REMOVAL

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The Contractor shall excavate rock, if encountered, as required to perform the required work, and shall dispose of the excavated material or stockpile for later use in non-structural areas. Contractor shall furnish acceptable material for backfill in place of the excavated rock.
- B. In general, rock in pipe trenches shall be excavated so as to be not less than 6-inches from the pipe (bottom and sides) after pipe has been laid.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Rock Definition: Solid mineral material that cannot be removed by heavy excavating equipment with ripping tools.

PART 3 - EXECUTION

3.01 MEANS OF REMOVAL

- A. No blasting will be allowed in this Contract.
- B. The Contractor shall be solely responsible for rock removal operations. The Contractor shall not hold the Owner and/or the Engineer liable for any damages resulting from rock removal operations on this project.

3.02 PAYMENT

Rock excavation shall be bid as unclassified and will not be paid for separately.

END OF SECTION 02221

SECTION 02222 - EXCAVATION

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Structure excavation.
- B. Shoring excavations.

1.02 RELATED REQUIREMENTS

- A. Section 02221 - Rock Removal.
- B. Section 02223 – Embankments and Backfill.
- C. Section 02225 - Excavating, Backfilling and Compacting for Utilities.

1.03 PROTECTION

- A. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods required to prevent cave-in or loose soil from falling into excavation.
- B. Underpin adjacent structures which may be damaged by excavation work, including service utilities and pipe chases.
- C. Notify Engineer of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.
- D. Protect bottom of excavations and soil adjacent to and beneath foundations from frost.
- E. Grade excavation top perimeter to prevent surface water run-off into excavation.
- F. Contractor shall provide ample means and devices with which to intercept any water entering the excavation area.

1.04 ROCK EXCAVATION

Any rock encountered within foundation excavations for recommended soil bearing elements should be removed to a depth sufficient to provide a minimum 24 inch cushion between the bottom of the footing and the top of rock. The cushion should be constructed of properly compacted KY DOT #610 stone or DGA free of organics and deleterious materials. See Section 02223, Embankments and Backfill.

PART 2 - PRODUCTS

2.01 MATERIALS

Subsoil: Excavated material, graded free of lumps larger than 12-inches, rocks larger than 12-inches, and debris.

PART 3 - EXECUTION

3.01 PREPARATION

Identify required lines, levels, contours, and datum.

3.02 EXCAVATION

- A. Excavate subsoil required for structure foundations, construction operations, and other work.
- B. Contractor is responsible to adequately brace open cuts and protect workmen and equipment from cave-in.
- C. Remove lumped subsoil, boulders, and rock up to 1/3 cu. yd., measured by volume.
- D. Correct unauthorized excavation at no cost to Owner.
- E. Fill over-excavated areas under structure bearing surfaces in accordance with direction by Engineer.
- F. Stockpile excavated material in area designated on site.

3.03 EXCAVATION FOR STRUCTURES

- A. For structures, excavate to elevations and dimensions indicated, plus ample space for construction operations and inspection of foundations.
 - 1. Unless otherwise shown on drawings, excavate for foundation bearing a minimum of 24-inches below existing grade. Structure foundations shall bear entirely on rock, or entirely on compacted granular fill. Where structures are not to be supported on rock and rock is encountered, under cut rock 24-inches and backfill with granular material, as directed.
 - 2. Structure foundations shall be installed immediately after excavation is completed, or if this cannot be done, the last 4 to 6-inches of material should not be removed until preparations for installing the foundation are complete. In no case should foundations be installed in excavations that contain water. Any soft, saturated areas in the bottom of excavations shall be removed or stabilized using granular material.
 - 3. Make no excavation to the full depth indicated when freezing temperatures may

be expected unless foundations can be installed after the excavation has been completed. Bottom of excavation shall be protected from frost if foundation installation is delayed.

3.04 REMOVAL OF WATER

- A. The Contractor, at his own expense, shall provide adequate facilities for promptly and continuously removing water from all excavation.
- B. To ensure proper conditions at all times during construction, the Contractor shall provide and maintain ample means and devices (including spare units kept ready for immediate use in case of breakdowns) with which to remove promptly and dispose properly of all water entering trenches and other excavations. Such excavation shall be kept dry until the structures, pipes, and appurtenances to be built therein have been completed to such extent that they will not be floated or otherwise damaged.
- C. All water pumped or drained from the Work shall be disposed of in a suitable manner without undue interference with other work, damage to pavements, other surfaces, or property. Suitable temporary pipes, flumes, or channels shall be provided for water that may flow along or across the site of the Work.
- D. If necessary, the Contractor shall dewater the excavations by means of an efficient drainage wellpoint system that will drain the soil and prevent saturated soil from flowing into the excavation. The wellpoints shall be designed especially for this type of service. The pumping unit shall be designed for use with the wellpoints, and shall be capable of maintaining a high vacuum and of handling large volumes of air and water at the same time.
- E. The installation of the wellpoints and pump shall be done under the supervision of a competent representative of the manufacturer. The Contractor shall do all special work such as surrounding the wellpoints with sand or gravel or other work which is necessary for the wellpoint system to operate for the successful dewatering of the excavation.

3.05 UNAUTHORIZED EXCAVATION

If the bottom of any excavation is taken out beyond the limits indicated or prescribed, the resulting void shall be backfilled at the Contractor's expense with thoroughly compacted KY DOT #610 stone or DGA free of organics and deleterious materials in accordance with Section 02223, Embankment and Backfill, or with Class A concrete, if the excavation was for a structure.

3.06 ELIMINATION OF UNSUITABLE MATERIAL

- A. If material unsuitable for foundation (in the opinion of the Engineer) is found at or below the grade to which excavation would normally be carried in accordance with

the Drawings and/or Specifications, the Contractor shall remove such material to the required width and depth and replace it with thoroughly compacted, KY DOT #610 stone or DGA free of organics and deleterious materials or Controlled Low Strength Material.

- B. No excavated materials shall be removed from the site of the work or disposed of by the Contractor except as directed or permitted.
- C. Surplus excavated materials suitable for backfill shall be used to backfill normal excavations in rock or to replace other materials unacceptable for use as backfill; shall be neatly deposited and graded so as to make or widen fills, flatten side slopes, or fill depressions. All work shall be as directed or permitted and without additional compensation.
- D. Surplus excavated materials not needed as specified above shall be hauled away and dumped by the Contractor, at his expense, at appropriate on-site locations as designated by the Owner, and in accordance with arrangements made by the Contractor.

3.07 EXCESS MATERIAL

Disposal of excess material shall be the responsibility of the Contractor. The Contractor shall determine the best method and area for disposal and obtain all permits and required permission. On-site areas have been designated by the Owner.

3.08 EXISTING UTILITIES AND OTHER OBSTRUCTIONS

Prior to the commencement of construction on the project, the Contractor shall contact the utility companies whose lines, above and below ground, may be affected during construction and verify the locations of the utilities as shown on the Contract Drawings. The Contractor shall ascertain from said companies if he will be allowed to displace or alter, by necessity, those lines encountered or replace those lines disturbed by accident during construction, or if the companies themselves are only permitted by policy to perform such work. If the Contractor is permitted to perform such work, he shall leave the lines in as good condition as were originally encountered and complete the Work as quickly as possible. All such lines or underground structures damaged or molested in the construction shall be replaced at the Contractor's expense, unless in the opinion of the Engineer, such damage was caused through no fault of the Contractor.

3.09 FIELD QUALITY CONTROL

Provide for visual inspection of rock surfaces under provisions of Section 01400.

END OF SECTION 02222

SECTION 02223 – EMBANKMENTS AND BACKFILL

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Structure perimeter backfilling to subgrade elevations.
- B. Site backfilling.
- C. Compaction requirements.
- D. Access road subgrade preparation.

1.02 RELATED WORK

- A. Section 00700 - Submittals (General Conditions).
- B. Section 01400 - Quality Control: Compaction requirements of backfill.
- C. Section 02222 - Excavation.
- D. Section 02225 - Excavation, Backfilling and Compacting for Utilities.

1.03 REFERENCES

- A. Commonwealth of Kentucky, Standard Specifications for Road and Bridge Construction.
- B. ANSI/ASTM D698 - Moisture-Density Relations of Soils and Soil-Aggregate Mixture Using 5.5 lb Rammer and 12 inch Drop.
- C. ANSI/ASTM D1556 - Density of Soil in Place by the Sand-Cone Method.
- D. ASTM 2922 - Density of Soil and Soil-Aggregate in Place by Nuclear Methods.
- E. ASTM 3017 - Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

1.04 TESTS

- A. Tests and analysis of fill materials will be performed in accordance with ANSI/ASTM D698 and under provisions of Section 01400. Tests shall include but not be limited to gradation analysis and moisture/density relationships.

- B. Test will be performed by an approved independent testing laboratory and shall be the responsibility of the Contractor at no additional cost to the Owner.
- C. Density test shall be performed in sufficient number to insure the specified densities are being obtained.
- D. When ASTM D2922 is used, the calibration curves shall be checked and adjusted if necessary by the procedure described in ASTM D2922, paragraph ADJUSTING CALIBRATION CURVE. ASTM D2922 results in a wet unit weight of soil; and when using this method, ASTM D3017 shall be used to determine moisture content of the soil. The calibration checks of both the density and moisture gauges shall be made at the beginning of a job on each different type of material encountered and at intervals as directed by the testing laboratory.

1.05 SUBMITTALS

Results of soil moisture and density tests by an approved testing laboratory shall be submitted to the Engineer for review.

1.06 DEFINITIONS

Structural Areas: All locations under concrete foundations, floor slabs, footers, buildings, concrete structures, bridges, etc.

Non-structural Areas: Locations such as landscaped areas, sidewalks, roadways, etc.

PART 2 - PRODUCTS

2.01 SELECT FILL MATERIALS

- A. The on-site residual soils are considered suitable for use as compacted fill in non-structural areas. A minimum of 95 percent of the maximum dry density and plus or minus 2 percent of optimum moisture content should be obtained for fill soils supporting non-structural areas. Field density tests should be performed on each lift placed to determine if proper compaction is being achieved. If sufficient suitable material is not available from the excavations, the backfill material in non-structural areas shall be screened gravel, crushed stone or selected borrow as directed. Backfill material in structural areas shall be KY DOT #610, DGA, or Controlled Low Strength Material.
- B. Frozen material shall not be placed in the backfill nor shall backfill be placed upon frozen material. Previously frozen material shall be removed or shall be otherwise treated as required before new backfill is placed.
- C. All material, whether from the excavations or from borrow, shall be of such nature

that after it has been placed and properly compacted, it will make a dense, suitable fill. It shall not contain vegetation, masses of roots, individual roots more than 18-inches long or more than 1/2-inch in diameter, stones over 6-inches in diameter, or porous matter.

2.02 COMPACTED FILL

- A. Soil used for compacted fill in non-structural areas should be inorganic clayey soils free of deleterious debris or rocks whose largest dimension is no larger than 3-inches. The soil should have a liquid limit (LL) of less than 50, a plasticity index (PI) of less than 30, and a maximum dry density according to the standard Proctor compaction test of at least 100 pcf. The fill should be compacted to at least 95 percent of the SPMDD. The top foot of structural fill shall be compacted to 100 percent of the SPMDD.
- B. The moisture content of the compacted fill material shall be within 2% of the optimum moisture content as determined by ASTM D-698.

2.03 STRUCTURAL BACKFILL

- A. An underdrain system shall be provided for the soil bearing structures. The underdrain should be constructed of 12-inches of #57 crushed stone and designed in a manner that would promote positive drainage away from the foundation elements. Final site grading should be accomplished in such a manner as to divert surface runoff and roof drains away from all foundation elements.
- B. All structures, unless otherwise noted on the Drawings, shall be supported entirely by bedrock or well compacted crushed stone consisting of Kentucky No. 610 size aggregate, DGA, or Controlled Low Strength Material. Structures that have pressure relief valves shall have a 12-inch blanket of #57 stone to allow for proper drainage around the PRV's. Any building supported by stone should have a minimum of 12-inches of compacted crushed stone beneath the bottom of the slab (i.e. foundation elements). Structures should not be supported on a combination of crushed stone and bedrock.
- C. Crushed stone used as a bearing medium should be placed in uniform, loose lifts not exceeding 8-inches in thickness. It is recommended that each lift be compacted by a minimum of five (5) passes of a smooth drum vibratory roller having a total static weight of not less than 20,000 pounds. The diameter of the drum should be between 5.0 and 5.5 feet and 6.0 and 6.5 feet wide.
- D. Walls below final grade should be backfilled with a minimum 12-inch thick layer of free draining material up to two feet below final grade. The two feet above this free draining material should be backfilled with an impervious material that would retard surface water infiltration. The free draining material should extend down to a rock blanket beneath the bottom slab. Areas within five (5) feet horizontally from vertical walls, the Contractor shall use a hand compactor.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify foundation perimeter drainage installation has been inspected.
- B. Verify areas to be backfilled are free of debris, snow, ice, or water, and ground surfaces are not frozen.

3.02 PREPARATION

- A. When necessary, compact subgrade surfaces to density requirements for the backfill material and prepare subgrade or previous layer of compacted fill prior to placement of additional fill by scarifying or disking.
- B. Cut out soft areas of subgrade not readily capable of in-situ compaction. Backfill with subsoil and compact to density equal to requirements for subsequent backfill material.

3.03 BACKFILLING - GENERAL

- A. Backfill areas to contours and elevations. Use unfrozen materials. The Contractor shall keep the foundation and subgrade free from water or unacceptable materials after the fill operations have started.
- B. Backfill systematically, as early as possible, to allow maximum time for natural settlement. Do not backfill over porous, wet, or spongy subgrade surfaces.
- C. Place and compact fill materials in continuous layers not exceeding 8-inches loose depth. Field density tests shall be performed on each lift.
- D. Employ a placement method so not to disturb or damage foundation drainage.
- E. Maintain optimum moisture content of backfill material to attain required compaction density as specified. Material deposited on the fill that is too wet shall be removed or spread and permitted to dry, assisted by disking or blading, if necessary, until the moisture content is reduced to the specified limits.
- F. All crushed stone fill and crushed stone backfill under structures and pavements adjacent to structures shall be DGA or #610 crushed stone per Kentucky Highway Department Standard Specifications for Road and Bridge Construction, unless indicated otherwise. Fill and backfill materials shall be placed in layers not exceeding eight (8) inches in thickness and compacted to 95 percent of maximum dry density.
- G. Backfill shall not be placed against or on structures until they have attained sufficient

strength to support all loads to which subjected without distortion, cracking, or damage. Deposit soil evenly around the structure.

- H. Slope grade away from structures minimum 2-inches in 10-feet, unless noted otherwise.
- I. Make changes in grade gradual. Blend slopes into level areas.
- J. Remove surplus excavation materials to designated areas.

3.04 TOLERANCES

Top Surface of Backfilling: Plus or minus 1-inch.

3.05 FIELD QUALITY CONTROL

- A. Compaction testing will be performed in accordance with ASTM D1556 or ASTM D2922 and under provisions of Sections 01400.
- B. If tests indicate work does not meet specified requirements, remove work, replace and retest at no cost to Owner.

END OF SECTION 02223

SECTION 02225 - EXCAVATING, BACKFILLING, AND
COMPACTING FOR UTILITIES

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall make excavations in such widths and depths as will give suitable room for below grade vaults, pump stations, etc., laying pipe to the lines, grades and elevations, furnish, place and compact all backfill materials specified herein or denoted on the Drawings. The materials, equipment, labor, etc., required herein are to be considered as part of the requirements and costs for installing the various pipes, structures and other items they are incidental to.

1.02 RELATED WORK

- A. Section 02221 - Rock Removal.
- B. Section 02731 – Gravity Sewers
- C. Section 02732 – Sewage Force Mains

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Crushed stone material shall conform with the requirements of the applicable sections of the Kentucky Bureau of Highways Standard Specifications and shall consist of clean, hard, and durable particles or fragments, free from dirt, vegetation or objectionable materials.
- B. Two classes of crushed stone material are used in this Section. The type of material in each class is as follows:
 - 1. Class I - No. 9 Aggregate.
 - 2. Class II - Dense Graded Aggregate (DGA).

PART 3 - EXECUTION

3.01 EXCAVATION OF TRENCHES

- A. Unless otherwise directed by the Engineer, trenches are to be excavated in open cuts.
 - 1. Where pipe is to be laid in gravel bedding or concrete cradle, the trench may be excavated by machinery to, or just below, the designated subgrade, provided that the material remaining at the bottom of the trench is no more than slightly

- disturbed.
2. Where pipe is to be laid directly on the trench bottom, the lower part of trenches in earth shall not be excavated to subgrade by machinery. However, just before the pipe is to be placed, the last of the material to be excavated shall be removed by means of hand tools to form a flat or shaped bottom, true to grade, so that the pipe will have a uniform and continuous bearing and support on firm and undisturbed material between joints except for limited areas where the use of pipe slings may have disturbed the bottom.
- B. Trenches shall be sufficient width to provide working space on each side of the pipe and to permit proper backfilling around the pipe.
 1. The Contractor shall remove only as much of any existing pavement as is necessary for the prosecution of the Work. The pavement shall be cut with pneumatic tools, without extra compensation to the Contractor, to prevent damage to the remaining road surface. Where pavement is removed in large pieces, it shall be disposed of before proceeding with the excavation.
 - C. All excavated materials shall be placed a safe distance back from the edge of the trench.
 - D. Unless specifically directed otherwise by the Engineer, not more than 500 feet of trench shall be opened ahead of the pipe laying work of any one crew, and not more than 500 feet of open ditch shall be left behind the pipe laying work of any one crew. Watchmen or barricades, lanterns 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.
 - E. When so required, or when directed by the Engineer, only one-half of street crossings 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 passage of traffic. The convenience of 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 bridged at the direction of the Engineer.
 - F. Trench excavation shall include the removal of earth, rock, or other materials encountered in the excavating to the depth and extent shown or indicated on the Drawings.

3.02 SEWAGE FORCE MAIN AND WATER PIPE BEDDING

- A. Piping for water mains shall be supported as follows:
 1. The trench bottom for water main piping shall be stable, continuous, relatively smooth and free of frozen material, clodded dirt, foreign material and rock or granular material larger than 1/2 inch in diameter and shall be prepared with a

minimum of 6 inches of crushed stone per the Drawings. The foundation for water main piping shall be prepared so that the entire load of the backfill on top of the pipe will be carried uniformly on the barrel of the pipe. Any uneven areas in the trench bottom shall be shaved-off or filled-in with Class I granular bedding. When the trench is made through rock, the bottom shall be lowered to provide 6-inches of clearance around the pipe. Class I granular bedding or earth material free of rocks shall be used to bring the trench bottom to grade.

- B. After each pipe has been brought to grade, aligned, and placed in final position, crushed stone material for water main piping shall be deposited and densified under the pipe haunches and on each side of the pipe up to the spring line of the pipe to prevent lateral displacement and hold the pipe in proper position during subsequent pipe jointing, bedding, and backfilling operations.
- C. In wet, yielding and mucky locations where pipe is in danger of sinking below grade or floating out of grade or line, or where backfill materials are of such a fluid nature that such movements of pipe might take place during the placing of the backfill, the pipe must be weighted or secured permanently in place by such means as will prove effective.
- D. Where an unstable (i.e., water, mud, etc.) trench bottom is encountered, stabilization of the trench bottom is required. This is to be accomplished by undercutting the trench depth and replacing to grade with a foundation of crushed stone aggregate.
- E. The depth of the foundation is dependent upon the severity of the trench bottom. The size of stone aggregate used in the foundation will be determined by the condition of the unstable material. Once the trench bottom has been stabilized, the required Class I bedding material can be placed.
- F. It should be noted that no pipe shall be laid on solid or blasted rock.
- G. Pipe bedding as required in Paragraphs A, B, and D of this Section is **not** considered a separate pay item.

3.03 SEWAGE FORCE MAIN AND WATER PIPE BACKFILLING

- A. Initial Backfill:
 - 1. This backfill is defined as that material which is placed over the pipe from the spring line to a point 12-inches above the top of the pipe. For water main piping, initial backfill material shall be Class I material.
 - 2. Material used in the initial backfilling is **not** a separate pay item. Payment for the material is included in the unit price per linear foot of water main.
- B. Final Backfill:
 - 1. There are two cases where the method of final backfilling varies. The various cases and their trench situations are as follows:

- a. Case I - Areas not subject to vehicular traffic.
 - b. Case II - Paved areas including streets, drives, parking areas, and walks.
2. In all cases, walking or working on the completed pipelines, except as may be necessary in backfilling, will not be permitted until the trench has been backfilled to a point 12-inches above the top of the pipe. The method of final backfilling for each of the above cases is as follows:
- a. Case I - The trench shall be backfilled from a point 12-inches above the top of the pipe to a point 8-inches below the surface of the ground with earth material free from large rock (over one-half cubic foot in volume), acceptable to the Engineer. The remainder of the trench shall be backfilled with earth material reasonably free of any rocks.
 - b. Case II - The trench shall be backfilled from a point 12-inches above the top of the pipe to a point 12-inches below the existing pavement surface with Class I (No. 9 crushed stone aggregate) material. The backfill shall be mechanically tamped in approximately 6-inch layers to obtain the maximum possible compaction. The remaining backfill shall be Class II (dense graded aggregate) material mechanically tamped to maximum possible compaction. The trench may be left with a slight mound if permitted by the Engineer. Where required by state or local regulations, a bituminous binder course detailed on the Drawings and specified in Section 02510 shall be incorporated in the final backfill.
3. Earth and Class I material used in final backfill is not a separate pay item. Payment shall be included in the price of water main.
4. Class II material used in final backfill shall be included in the unit price of the pipe.
- C. A sufficient amount of Class II material shall be stockpiled to ensure immediate replacement by the Contractor of any settled areas. No extra payment will be made for the filling in of settled or washed areas by the Contractor.
- D. Excavated materials from trenches, in excess of quantity required for trench backfill, shall be disposed of by the Contractor. It shall be the responsibility of the Contractor to obtain location or permits for its disposal, unless specific waste areas have been designated on the Drawings or noted in these Specifications. The cost of disposal of excess excavated materials, as set forth herein, no additional compensation being allowed for hauling or overhaul.

3.04 GRAVITY SEWER BEDDING

- A. Piping for gravity sewers and force mains shall be supported as follows:
1. All gravity sewer piping shall be laid on a bed of granular material except when a concrete encasement situation occurs. All pipe bedding material shall be Class I (No. 9 crushed stone aggregate) and shall be placed to a depth of 6-inches in an earth trench and 6-inches in a rock trench. Aggregate bedding shall be graded to provide for a uniform and continuous support beneath the pipe at all points.
 2. The trench bottom for force main piping shall be stable, continuous, relatively

smooth and free of frozen material, clodded dirt, foreign material and rock or granular material larger than 1/2 inch in diameter. The foundation for force main piping shall be prepared so that the entire load of the backfill on top of the pipe will be carried uniformly on the barrel of the pipe. Any uneven areas in the trench bottom shall be shaved-off or filled-in with Class I granular bedding. When the trench is made through rock, the bottom shall be lowered to provide 6-inches of clearance around the pipe. Class I granular bedding shall be used to bring the trench bottom to grade.

- B. After each pipe has been brought to grade, aligned, and placed in final position, Class I material for gravity sewer piping and earth material for force main piping shall be deposited and densified under the pipe haunches and on each side of the pipe up to the spring line of the pipe to prevent lateral displacement and hold the pipe in proper position during subsequent pipe jointing, bedding, and backfilling operations.
- C. In wet, yielding and mucky locations where pipe is in danger of sinking below grade or floating out of grade or line, or where backfill materials are of such a fluid nature that such movements of pipe might take place during the placing of the backfill, the pipe must be weighted or secured permanently in place by such means as will prove effective.
- D. Where an unstable (i.e., water, mud, etc.) trench bottom is encountered, stabilization of the trench bottom is required. This is to be accomplished by undercutting the trench depth and replacing to grade with a foundation of crushed stone aggregate.
- E. The depth of the foundation is dependent upon the severity of the trench bottom. The size of stone aggregate used in the foundation will be determined by the condition of the unstable material. Once the trench bottom has been stabilized, the required Class I bedding material can be placed.
- F. It should be noted that no pipe shall be laid on solid or blasted rock.
- G. Pipe bedding as required in Paragraphs A, B, and D of this Section is **not** considered a separate pay item.

3.05 GRAVITY SEWER BACKFILL

- A. Initial Backfill:
 - 1. This backfill is defined as that material which is placed over the pipe from the spring line to a point 12-inches above the top of the pipe. For gravity sewer piping the material shall be Class I (No. 9 crushed stone aggregate) and may be machine placed without compaction. Uneven places in the backfill shall be leveled by hand. For force main piping, initial backfill material shall be earth material free of rocks, acceptable to the Engineer or with Class I material when a condition exists mentioned in Paragraph A, 3. below.
 - 2. Material used, whether earth or Class I, in the initial backfilling is **not** a separate

pay item. Payment for the material is included in the unit price per linear foot of gravity sewer or force main.

3. In areas where large quantities of rock are excavated and the available excavated earth in the immediate vicinity is insufficient for placing the required amount of backfill over the top of the pipe as set forth in Paragraph A.1, the Contractor shall either haul in earth or order Class I material for backfilling over the pipe. Neither the hauling and placement of earth nor the ordering and placement of Class I material to fulfill the backfill requirements set forth herein is considered a separate pay item.

B. Final Backfill:

1. There are two cases where the method of final backfilling varies. The various cases and their trench situations are as follows:
 - a. Case I - Areas not subject to vehicular traffic.
 - b. Case II - Paved areas including streets, drives, parking areas, and walks.
2. In all cases, walking or working on the completed pipelines, except as may be necessary in backfilling, will not be permitted until the trench has been backfilled to a point 12-inches above the top of the pipe. The method of final backfilling for each of the above cases is as follows:
 - a. Case I - The trench shall be backfilled from a point 12-inches above the top of the pipe to a point 8-inches below the surface of the ground with earth material free from large rock (over one-half cubic foot in volume), acceptable to the Engineer. The remainder of the trench shall be backfilled with earth material reasonably free of any rocks.
 - b. Case II - The trench shall be backfilled from a point 12-inches above the top of the pipe to a point 12-inches below the existing pavement surface with Class I (No. 9 crushed stone aggregate) material. The backfill shall be mechanically tamped in approximately 6-inch layers to obtain a compaction of 95 percent density as measured by the modified Procter Test. The remaining backfill shall be Class II (dense graded aggregate) material mechanically tamped to the compaction as required above for Class I material. The trench may be left with a slight mound if permitted by the Engineer. Where required by state or local regulations, a bituminous binder course detailed on the Drawings and specified in Section 02510 shall be incorporated in the final backfill.
3. Earth and Class I material used in final backfill is not a separate pay item. Payment shall be included in the price of gravity sewer and force main.
4. Class II material used in final backfill shall be included in the unit price for gravity sewer and force main.

C. A sufficient amount of Class II material shall be stockpiled to insure immediate replacement by the Contractor of any settled areas. No extra payment will be made for the filling in of settled or washed areas by the Contractor.

D. Excavated materials from trenches, in excess of quantity required for trench backfill, shall be disposed of by the Contractor. It shall be the responsibility of the Contractor

to obtain location or permits for its disposal, unless specific waste areas have been designated on the Drawings or noted in these Specifications. The cost of disposal of excess excavated materials, as set forth herein, no additional compensation being allowed for hauling or overhaul.

3.06 PLACEMENT OF IDENTIFICATION TAPE

- A. The placement of detectable mylar underground marking tape shall be installed over all utility lines. Care shall be taken to ensure that the buried marking tape is not broken when installed and shall be Lineguard brand encased aluminum foil, Type III. The identification tape is manufactured by Lineguard, Inc., P.O. Box 426, Wheaton, IL 60187.
- B. The identification tape shall bear the printed identification of the utility line below it, such as "Caution - Buried Below". Tape shall be reverse printed; surface printing will not be acceptable. The tape shall be visible in all types and colors of soil and provide maximum color contrast to the soil. The tape shall meet the APWA color code, and shall be 2-inches in width. Colors are: yellow - gas, green - sewer, red - electric, blue - water, orange - telephone, brown - force main.
- C. The tape shall be the last equipment installed in the trench so as to be first out. The tape shall be buried 18-inches below top of grade. After trench backfilling, the tape shall be placed in the backfill and allowed to settle into place with the backfill. The tape may be plowed in after final settlement, installed with a tool during the trench backfilling process, unrolled before final restoration or installed in any other way acceptable to the Owner or Engineer.

3.07 COPPER TRACING WIRE

No. 12 solid copper wire shall be laid in top 12 inches of trench over all plastic pipe. The copper tracing wire shall be wrapped around a line marker at least three (3) times and tied one (1) foot above grade.

END OF SECTION 02225

SECTION 02510 - ASPHALT CONCRETE PAVING

PART 1 - GENERAL

1.01 SUMMARY

- A. Provide asphalt concrete paving for following applications and prepared subbase and compacted base.
 - 1. Roads.
 - 2. Parking areas.
 - 3. Driveways.
 - 4. Walkways.
 - 5. Curbs.
- B. Provide striping for parking, roadway, and handicapped markings.

1.02 SUBMITTALS

Submit for approval product data, test reports.

1.03 QUALITY ASSURANCE

Comply with governing codes and regulations. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Prime coat: Cut-back asphalt.
- B. Tack coat: Emulsified asphalt.
- C. Asphalt cement: AASHTO M226 and as required by local authorities.
- D. Aggregate: Crushed stone or crushed gravel.
- E. Traffic paint: Quick-drying chlorinated-rubber alkyd type, color as approved.
- F. Wheelstops: Precast concrete of uniform color and texture with steel stakes.

PART 3 - EXECUTION

3.01 NEW PAVEMENT INSTALLATION

- A. Asphalt/aggregate Mixture: Comply with local DPW Standard Specifications for Highways and Bridges. Class as required by loading and use.
- B. Remove loose material from compacted subbase. Proof roll and check for areas requiring additional compaction. Report unsatisfactory conditions in writing. Beginning of work means acceptance of subbase.
- C. Apply tack coat to previous laid work and adjacent in-place concrete surfaces.
- D. Place asphalt concrete at minimum temperature of 225 degrees F in strips not less than 10' wide overlapping previous strips. Complete entire base course before beginning surface course.
- E. Construct curbs to dimensions indicated or if not indicated to standard shapes. Provide tack coat between curb and pavement.
- F. Begin rolling when pavement can withstand weight of roller. Roll while still hot to obtain maximum density and to eliminate roller marks.
- G. Provide 4" lane and striping paint in uniform, straight lines. Provide wheelstops where indicated and securely dowel into pavement. Protect work from traffic and damage.
- H. Test in-place asphalt work for thickness and smoothness. Remove and replace defective work and patch to eliminate evidence of patching. Provide the following minimum thickness and smoothness unless otherwise greater thickness is required on the Drawings:
 - 1. Subbase course: 4-inch No. 2 stone and 4-inch DGA.
 - 2. Base course: 2-1/2-inch.
 - 3. Surface course: 1-1/2-inch plus or minus 1/4-inch at drives and parking; 1-inch plus or minus 1/4-inch at walks.
 - 4. Surface course smoothness: Plus or minus 1/8-inch in 10 feet. No ponding of water is acceptable.

3.02 REPLACEMENT PAVEMENT FOR UTILITIES

- A. Sections of pavement shall be replaced as required to install the pipelines. Disturbed pavement shall be reconstructed to original lines and grades with bituminous binder as detailed on the Drawings and in such manner as to leave all such surfaces in fully as good or better condition than that which existed prior to these operations.

- B. Prior to trenching, the pavement shall be scored or cut to straight edges along each side of the proposed trench to avoid unnecessary damage to the remainder of the paving. Edges of the existing pavement shall be recut and trimmed as necessary to square, straight edges after the pipe has been installed and prior to placement of the binder course or concrete.
- C. Backfilling of trenches shall be in accordance with the applicable portions of Section 02225.
- D. Bituminous concrete binder shall be one course construction in accordance with applicable provisions of the Kentucky Department of Highways Standard Specifications, Section 402.
 - 1. Placement and compaction of binder courses shall be in accordance with Section 402 of the Kentucky Department of Highways Standard Specifications. Minimum thickness after compaction shall be 2-inches for driveways and 5 ½ inches for roads.
- E. Pavement restoration shall be in accordance with the above unless shown otherwise on the plans.

END OF SECTION 02510

SECTION 02630 - ENCASEMENT PIPE

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall furnish all labor, material, and equipment necessary to install encasement pipe together with all appurtenances as shown and detailed on the Drawings and specified herein.

1.02 RELATED WORK

- A. Section 02222 - Excavation.
- B. Section 02225 - Excavating, Backfilling and Compacting for Utilities.
- C. Section 02610 - Water Pipe and Fittings.
- D. Section 02731 – Gravity Sewers
- E. Section 02732 – Sewage Force Mains

1.03 REFERENCES

ASTM A139 – Standard Specifications for Electric-Fusion (Arc) Welded Steel Pipe (NPS 4 and over).

PART 2 - PRODUCTS

2.01 STEEL PIPE

- A. Steel seamless pipe shall be new material, with a minimum yield of 35,000 psi and a wall thickness as shown below. All joints encasement pipe joints shall be welded.

Nominal Diameter Inches	Minimum Wall Thickness Inches	
	Highway Crossing	Railroad Crossing
14 & Under	0.250	0.219
16	0.375	0.250
18	0.375	0.281
20 & 22	0.375	0.312
24	0.500	0.344
26	0.500	0.375
28	0.500	0.406

30	0.500	0.438
32	0.500	0.469
34 & 36	0.500	0.500
42	0.625	0.625
48	0.625	0.625

- B. Weldings of the steel casing pipe shall be solidly butt-welded with a smooth non-obstructing joint inside and conform to all specifications as required by American Welding Society (AWS). The casing pipe shall be installed without bends. All welders and welding operators shall be qualified as prescribed by AWS requirements.
- C. The material shall conform to the chemical and mechanical requirements of the latest revision of ASTM A139 "Electric-Fusion (ARC) - Welded Steel Pipe (NPS 4 and Over)," unless otherwise stated herein.
- D. Grade B steel shall be used. The steel shall be new and previously unused.
- E. Hydrostatic testing shall not be necessary.
- F. The wall thickness at any point shall be within 0.025 inches of the nominal metal thickness specified.
- G. A protective coating shall be applied to each length of pipe. Following an SSPC SP-7 "Brush-Off Blast Cleaning" surface preparation, 3 (dry) mils of Tnemec-Primer 10-99 (red), or of an approved equal shall be applied in the manner recommended by the respective paint manufacturer.
- H. Each length of pipe shall be legibly marked, stating: manufacturer, diameter, wall thickness and primer.
- I. Precaution shall be taken to avoid deforming the pipe and damaging the primer during shipping.
- J. Pipe shall be within the following tolerances:
 - Straightness 1/4 -- 3/8.
 - Roundness 1 Percent.
 - Thickness 12 1/2 Percent.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Where shown on the Drawings, the Contractor shall install encasement pipe. Two

methods of installation are designated, the open-cut method and the boring method.

1. The open-cut method shall consist of placing the encasement pipe in the excavated trench, then installing the carrier pipe inside the encasement pipe. Excavation, bedding and backfilling shall be in accordance with Section 02225.
 2. The boring method consists of pushing or jacking the encasement pipe into the hole as an auger cuts out the material or after the auger has completed the bore. The encasement pipe shall be installed in a manner that will not disrupt traffic.
- B. The carrier pipe shall be ductile iron, polyvinyl chloride, or polyethylene pipe as designated on the Drawings. The carrier pipe will not be permitted to rest on bells or couplings.
- C. Pipeline Spacers
1. Carrier pipes installed inside encasement pipes shall be centered throughout the length of encasement pipe. Centering shall be accomplished by the installation of polyethylene pipeline spacers attached to the carrier pipe in such manner as to prevent the dislodgement of the spacers as the carrier pipe is pulled or pushed through the encasement pipe. Spacers shall be of such dimensions to provide: full supportive load capacity of the pipe and contents; of such thickness to allow installation and/or removal of the pipe; and to allow no greater than 1/2 inch movement of the carrier pipe within the cover pipe after carrier pipe is installed.
 2. Spacers shall be located immediately behind each bell and at a maximum spacing distance as follows:

Carrier Pipe Diameter (inches)	Maximum Spacing (feet)
2 - 2-1/2	4
3 - 8	7
10 - 26	10
28	9
30	8
32	7
34	6
36 - 38	5.5
40 - 44	5
46 - 48	4

The materials and spacing to be used shall be accepted by the Engineer prior to installation. The polyethylene pipeline spacers shall be manufactured by Pipeline Seal and Insulator, Inc. (PSI), Raci Spacers, Inc., or equal. Installation shall be in accordance with manufacture's recommendations.

3.02 SEALING

After installation of the carrier pipe within the encasement pipe, the ends of the casing shall be sealed in the following manner. The space between the casing and the carrier pipe shall be filled with a waterproofing bitumastic compound until a tight seal is obtained. An Ethylene Propylene Diene Monomer (EPDM) elastomeric membrane shall be wrapped around the end of the encasement pipe in three layers and securely bound to the casing and the carrier pipe barrel with stainless steel bands. The EPDM membrane shall be 0.045 inches thick and have a tear resistance of 125 pounds/inches. The membrane shall be manufactured by Carlisle Tire & Rubber Company, Firestone Industrial Products Company, or approved equal. The casing sealant should be constructed to allow drainage of liquid (water).

3.03 DAMAGE

The cost of repairing damage that is caused by the boring operation to the highway or railroad shall be borne by the Contractor.

END OF SECTION 02630

SECTION 02642 - SEWAGE VALVES AND GATES

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. The Contractor shall furnish and install valves, gates, and miscellaneous piping appurtenances, as indicated on the Drawings and as herein specified.
- B. The Drawings and Specifications direct attention to certain features of the equipment, but do not purport to cover all the details of their design. The equipment furnished shall be designed and constructed equal to the high quality equipment manufactured by such firms as are mentioned hereinafter, or as permitted by the Engineer. The Contractor shall furnish and install the equipment complete in all details and ready for operation.
- C. Valves for use in the following services are specified under their appropriate sections:
 - 1. Chemical piping.
 - 2. Heating and air conditioning.
 - 3. Plumbing.
 - 4. Instrumentation.
 - 5. Electrical.
- D. Electrical work and equipment specified herein shall conform to the requirements of the applicable electrical sections.
- E. Enclosures shall be of a suitable type for the atmospheres in which they are installed.
- F. Sizes and capacities not specified herein are indicated on the Drawings.

1.02 RELATED WORK

- A. Section 02225 - Excavating, Backfilling and Compacting for Utilities.
- B. Section 02732 - Sewage Force Mains.

1.03 SUBMITTALS

- A. Complete shop drawings of all valves and appurtenances shall be submitted to the Engineer in accordance with the requirements of Section 01300.
- B. The manufacturer shall furnish the Engineer two (2) copies of an affidavit stating that the valve and all materials used in its construction conform to the applicable requirements of ANSI/AWWA valve, and that all tests specified therein have been performed and that all test requirements have been met.

- C. The Engineer shall be furnished two (2) copies of affidavit that the "valve protection testing" has been done and that all test requirements have been met.
- D. The Engineer shall be furnished with two (2) copies of affidavit that inspection, testing and rejection are in accordance with AWWA Standard.

PART 2 - PRODUCTS

2.01 BALL VALVES

- A. Ball valves shall have double union ends to permit removal of the valve without disconnecting the pipeline and shall be of the type which will not leak when the downstream union end is disconnected.
- B. Viton "O" ring seals shall be used with teflon seats. Ball valves shall be installed with the flow arrow pointed in the direction of flow to permit disconnection of downstream piping.
- C. During installation, the valve handle shall be oriented for ease of operation by rotating the valve body about its axis prior to tightening the ends.
- D. Where indicated on the Drawings, the valve shall be equipped with a pointer and scale plate which will indicate the position of the valve at all times.

2.02 CHECK VALVES

- A. Check valves 3 inches and larger shall be iron body, stainless mounted, full opening, swing type check valves with bolted covers and flanged ends. Flanges shall be faced and drilled in accordance with the 125-pound ANSI Standard. Valves shall comply with AWWA Standard C508 latest revision.
- B. Valves shall be equipped with outside lever and weight and shall be manufactured by M&H Valve Company, or equal.
- C. Valves shall be designed for working pressures as follows:

<u>Valve Size (Diameter)</u>	<u>Pressure</u>
3 to 12 inches	175 psi
14 to 24 inches	150 psi
30 inches and larger	120 psi

- D. Check valves smaller than 3 inches in size shall be 200-pound WOG minimum bronze or all brass swing check valves. Valves shall have screw-on cap and renewable composition disks. Valve body shall be as herein specified for gate valves.

- E. Check valves in pipelines carrying sewage or sludge shall be installed horizontally.

2.03 PLUG VALVES

- A. Plug valves shall conform to the latest revision of AWWA C507 and shall be of the non-lubricated eccentric type with resilient plugs faced with natural or synthetic rubber suitable for service in sewage and sludge piping. Plugs shall be one piece solid ductile iron, ASTM A536. All plugs shall have a cylindrical seating surface.
- B. Port areas shall be rectangular and unobstructed when open and have smoothly shaped waterways of one hundred percent (100%) of standard, full pipe area regardless of the CV values.
- C. Valve bodies shall be straight-through design with flushing port to maximize flow capacity and reduce headloss. Valve bodies shall be constructed of ASTM A126 class B cast iron, suitable for 125-pound working water pressure and shall have raised seats.
- D. Valves 3 inches and larger shall have seats of a welded in overlay of not less than 90 percent (90%) pure nickel or other acceptable material.
- E. Valves less than 3 inches shall have plastic-covered seats.
- F. Valves shall have permanently lubricated upper and lower stainless steel bushings on plug journal ends. Valve bodies shall be provided with grit excluders in the upper and lower journal areas.
- G. Valves shall have bolted bonnets. The valve stem packing shall be externally adjustable and provided with a spacer bonnet in order to allow visual inspection of the packing chamber. The packing shall be adjustable and replaceable without removing the bonnet of the valve and/or with the valve under pressure. Valves with non-adjustable packing shall not be acceptable.
- H. Valves 6 inches and larger shall be gear-operated with hand wheels and valves smaller than 6 inches shall be wrench operated, except as hereinafter specified or indicated on the Drawings. Gear operators shall have a stainless steel input shaft.
- I. Where there is a lack of space for the valve wrench to operate gear operators, hand wheels shall be provided in lieu of the wrench.
- J. Chain operators, consisting of sprocket wheels, chain guides and operating chains shall be provided for all valves with operator centerlines located more than 6 feet 6 inches above the operating level. Operating chain shall be galvanized and shall extend within 3 feet of the operating level.
- K. Gear operators shall be totally enclosed, worm gear type, permanently lubricated, and shall be watertight and dust tight.

- L. Gear operators shall be provided with adjustable stops for the open and closed position to prevent over travel, and shall have a valve disk position indicator.
- M. A suitable lever or wrench shall be provided for each six wrench operated valves but at least one wrench for each operating station. Wrenches or wheels and chains shall be of suitable size and sufficient length for easy operation of the valves at their rated working pressure.
- N. Plug valves 2-1/2 inches and smaller shall have screwed ends.
- O. Plug valves 3 inches and larger shall have mechanical joint or flanged ends faced and drilled in accordance with 125-pound ANSI Standard.
- P. Plug valves shall be PEF Series as manufactured by DeZurik, or equal.

2.04 GATE VALVES

- A. All gate valves shall be of the resilient wedge type, iron body, non-rising stem. Valves shall be of standard manufacture and of the highest quality both as to materials and workmanship and shall conform to the latest revisions of AWWA Specification C-509. Valves 2" through 12" shall have a rated working pressure of 250-psi and valves 12" through 24" shall have a rated working pressure of 200-psi.
- B. Gate valves for buried service shall be furnished with mechanical joint end connections, unless otherwise shown on the Drawings or specified herein. The end connection shall be suitable to receive ductile iron or PVC pipe.
- C. Gate valves for meter pits, pump stations, or other installations as shown on the Drawings shall be furnished with flanged joint end connections and hand wheel operator. The gate valve shall have the direction of opening cast on the rim of the hand wheel and provided with chain and lock.
- D. All gate valves shall have the name or monogram of the manufacturer, the year the valve casting was made, the size of the valve, and the working pressure cast on the body of the valve. Valves 18" and larger shall be provided with gear actuators.
- E. Buried service gate valves shall be provided with a 2-inch square operating nut and shall be opened by turning to the left (counterclockwise).
- F. Buried service gate valves shall be installed in a vertical position with valve box as detailed on the Drawings. They shall be set vertically and properly adjusted so that the cover will be in the same plane as the finished surface of the ground or paved surface (concrete, bituminous, etc.).
- G. Valves shall be those manufactured by Mueller, M&H Valve Company, American, or

equal.

2.05 SOLENOID VALVES

- A. Solenoid valves shall be bronze body, screwed-end, single integral seat, full pipe area, globe type valves, with renewable composition disk seats.
- B. Solenoid enclosures shall meet NEMA Type 4X requirements with coils epoxy encapsulated and suitable for high ambient temperatures (140 degrees F). NEMA 7 enclosures shall be provided in Class I or Class II hazardous areas.
- C. Valves shall be suitable for operation on 120 volt, single-phase, 60 Hz current, and designed to open when energized.
- D. The solenoid valves shall be manufactured by Automatic Valve Co., Inc., Indianapolis, IN; J.D. Gould Co., Indianapolis, IN; Automatic Switch Co., Florham Park, NJ; Magnatrol Valve Corp., Hawthorne, NJ; or equal.

2.06 TAPPING SLEEVES AND VALVES

- A. Tapping sleeves and valves shall consist of a split cast iron sleeve tee with mechanical joint ends on the main and a flange on the branch, and a tapping type gate valve with one flange end and one mechanical joint end.
- B. The valve shall, in general, conform to the requirements hereinbefore specified for gate valves and shall be furnished with a 2-inch square operating nut.
- C. The Contractor shall be responsible for verifying the outside diameter of the pipe to be correct. Sleeves and valves shall be manufactured by M&H Valve & Fittings, Div. of Dresser, Inc., Anniston, AL; Clow Corporation, Chicago, IL; Traverse City Iron Works, Traverse City, MI; or equal.

2.07 MUD VALVES

- A. Mud valves shall be located and sized as indicated on the Drawings and as specified herein. Mud valves shall be designed for basin drain applications, and shall be of the non-rising stem type. Mud valves shall be constructed entirely of stainless steel. All hardware shall be stainless steel. Valves shall have flanged end configurations.
- B. The valves shall be furnished with operating nuts to be located at the positions shown on the Drawings. They shall also be furnished with extension stems, stem guides if required, and bench stands.
- C. The mud valves shall be as manufactured by H. Fontaine LTD., Quebec Canada, Clow Corporation, or equal.

2.08 TELESCOPING VALVES

Telescoping valves shall be equipped with hand wheel operated floorstands and shall be sized as indicated on the Drawings. Valves shall be as manufactured by Troy Valve, H. Fontaine LTD., Quebec Canada, or equal.

2.09 AIR RELEASE AND AIR/VACUUM VALVES

- A. The combination valve shall be of the type that automatically exhausts large quantities of air during the filling of a system and allows air to re-enter during draining or when a vacuum occurs. Valves shall also release small quantities of air as they gather in the valve body during normal operation. The over-all height less back wash accessories shall not exceed 21 inches. Valves shall be constructed of cast iron body and cover, stainless trim and float with a Buna-N seat for positive seating.
- B. All back wash accessories shall be furnished and assembled to the valve, consisting of an inlet shut-off valve clear water inlet valve, rubber supply hose and quick disconnect couplings.
- C. All parts of the valves and the operating mechanisms shall be made of non-corrodible materials.
- D. The following table may be used to determine air/vacuum valve sizing requirements. If the selection is unclear or if the selection of the valve appears critical to the operation of the system, contact the Engineer for assistance in the selection.

1. Sizing table:

Flow Rate (GPM)	0 to 1300	1301 to 3800	3801 to 7100
Valve Size (inch)	1	2	3

- E. On sewage or sludge lines, the combination air/vacuum valve shall be as manufactured by ARI, or equal.

2.10 SLIDE GATES

- A. Self-contained slide gates shall be rising stem, fabricated gates complete with frames and anchor rods, plate disk, stem, and bench stand. All metal parts, with the exception of the stem and bench stand shall be of aluminum. Stems shall be made of stainless steel. Bench stands are described hereinafter.
- B. Side frame shall be made of extruded aluminum members having a slot in which the disk shall be guided. The bottom frame members shall be an aluminum tee or an angle to serve as a flat seat for the rubber seat on the bottom edge of the disk.

- C. The disk shall be reinforced as necessary to prevent buckling and to support the attachment for the stem.
- D. The top frame member or concrete structure shall support the bench stand as indicated on the Drawings.
- E. The slide gates shall be flush bottom fabricated metal gates made by H. Fontaine LTD., Quebec, Canada; Rodney-Hunt Machine Co., Orange, MA; or equal.
- F. Manually lifted slide gates shall have embedded or surface mounted frames and shall be as indicated on the Drawings and as herein specified.
- G. Disk and frame shall be 6061-T6 aluminum alloy and temper designation of the Aluminum Association. Disk shall be formed from aluminum plate and frames for the disk shall be of extruded aluminum. The handle shall be of the same material as the gates.
- H. Frame shall be set into the concrete as the concrete is being placed. The frame shall be straight and true, and shall permit the gates to be moved easily and to seat tight without binding.

2.11 DOWNWARD OPENING WEIR GATES

- A. Weir gates shall be supplied with all the necessary parts and accessories required for a complete, properly operating installation. All parts except for the stem shall be manufactured from ASTM B-209 Alloy 6061-T6 Aluminum. Stem and guides shall be manufactured from ASTM A-276 type 304L stainless steel. Weir gates shall conform to the applicable requirements of AWWA C501's latest edition.
- B. The frame shall be of the frame back design welded to form a rigid one-piece frame suitable for mounting on a concrete wall. The guide slot shall be provided with an ASTM D-1248 ultra high molecular weight polyethylene (UHMWPE).
- C. The slide shall consist of a flat plate reinforced with additional structural members to limit deflection to $1/720$ of the gate's span under the design loading conditions.
- D. The seals shall be made of UHMWPE of the self-adjusting type. A compression cord shall ensure contact in all positions providing a watertight seal. A watertight seal shall be maintained under design head conditions. Leakage shall not exceed 0.1 gallon per minute (gpm) per foot of seal periphery under seating head and 0.2 gpm per foot for the unseating head.
- E. Stems and couplings shall be manufactured of stainless steel designed to transmit in compression at least 2 times the rated output of the operating mechanism with a 40 pound effort on the crank. The stem shall have a slenderness ratio less than 200 and be provided with machined cut threads of the ACME type.

- F. For stems more than one-piece, individual sections shall be joined by solid couplings.
- G. Gates with widths equal to or greater than two times the height shall be provided with two lifting mechanisms connected by a tandem shaft.
- H. Weir gates shall be manufactured by H. Fontaine LTD., Quebec, Canada; Rodney-Hunt Co., Orange, MA; or equal. All weir gates shall be products of the same manufacturer.

2.12 SLUICE GATES

- A. Sluice gates shall conform to the AWWA Standard for sluice gates (C501-80) and as supplemented hereinafter. Sluice gates shall be manufactured by H. Fontaine LTD., Quebec Canada; Rodney-Hunt Co., Orange, MA; or equal. All sluice gates shall be products of the same manufacturer.
- B. The general equipment provided under this section shall be fabricated, assembled, erected and placed in proper operating condition in full conformity with the drawings, specifications, engineering data, instructions and recommendations of the equipment manufacturer unless exceptions are noted by the engineer.
- C. Large rectangular thimbles shall be provided with holes in the invert to allow satisfactory concrete placement beneath the thimble, where required.
- D. Sluice gates shall be substantially watertight under the design head conditions. Under the design seating head, the leakage shall not exceed 0.05 gallon per minute per foot of seating perimeter. Under the design unseating head, the leakage for heads of 20 feet or less shall not exceed 0.1 gallon per minute per foot of perimeter. The sluice gates shall be designed to withstand the design head show in the schedule.
- E. The gates sealing system shall have been tested through a cycle test in an abrasive environment and should show that the leakage requirements are still obtained after 25,000 cycles. These documents shall be provided to the engineer and owner in the submittal package.
- F. All gates shall be self contained and of the non-rising stem type.
- G. The gate frame shall be constructed of structural members of formed plate welded to form a rigid one-piece frame and fabricated from 304L stainless steel. The frame shall be of the flange back design suitable for mounting on a concrete wall, wall thimble or standard pipe flange as shown on the drawings. The frame configuration shall be of the flush-bottom type and shall allow the replacement of the top and side seals without removing the gate frame from the concrete or wall thimble. The yoke shall be 304L stainless steel.
- H. The slide shall consist of a flat plate reinforced with formed plates or structural members to limit its deflection to 1/720 of the gate's span under the design head. The slide shall be

fabricated from 304L stainless steel.

- I. The guides shall be made of UHMWPE (ultra high molecular weight polyethylene) and shall be of such length as to retain and support at least two-thirds (2/3) of the vertical height of the slide in the fully open position. Side and top seals shall be made of UHMWPE of the self-adjusting type. A compression cord made of Nitrile shall ensure contact between the UHMWPE guide and the gate in all positions. The sealing system shall maintain efficient sealing in any position of the slide and allow the water to flow only in the opened part of the gate. The bottom seal shall be made of resilient neoprene set into the bottom member of the frame and shall form a flush-bottom.
- J. The operating stem shall be of 303 MX stainless steel and designed to transmit in compression at least 2-times the rated output of the operating manual mechanism with a 40LB effort on the crank or hand wheel. The stem shall have a slenderness ratio less than 200. The threaded portion of the stem shall have machined cut threads of the Acme type. For stems in more than one piece and with a diameter of 1-3/4 inches and larger, the different sections shall be joined together by solid couplings. Stems with a diameter smaller than 1-3/4 inches shall be pinned to an extension tube. Gates having an equal to or greater than 2-times their height shall be provided with two lifting mechanisms connected by a tandem shaft. The lifting nut shall be bronze.
- K. If the gates are mounted directly to a concrete wall, an EPDM gasket shall be provided for mounting between the frame and the wall. Rising stem gates shall be provided with a clear stem tube cover.

2.13 VALVE BOXES

- A. Each buried stop and valve shall be provided with a suitable valve box. Boxes shall be of the adjustable, telescoping, heavy-pattern type with the lower part of cast iron and the upper part of steel or cast iron. They shall be so designed and constructed as to prevent the direct transmission of traffic loads to the pipe or valve.
- B. The upper or sliding section of the box shall be provided with a flange having sufficient bearing area to prevent undue settlement. The lower section of the box shall be designed to enclose the operating nut and stuffing box of the valve and rest on the valve bonnet.
- C. The boxes shall be adjustable through at least 6 inches vertically without reduction of the lap between sections to less than 4 inches.
- D. The inside diameter of boxes for valves shall be at least 4-1/2 inches, and the lengths shall be as necessary for the depths of the valves or stops with which the boxes are to be used.
- E. Covers for valves shall be close fitting and substantially dirt-tight.
- F. The top of the cover shall be flush with the top of the box rim. An arrow and the word OPEN to indicate the direction of turning to open the valve shall be cast in the top of the

valve covers.

2.14 FLOORSTANDS

- A. Floorstands shall be hand wheel or crank operated as indicated on the Drawings or as required to suit the application.
- B. Hand wheel operated type shall be without gear reduction and crank-operated type will have either single or double gear reduction depending upon the lifting capacity required. Each type shall be provided with a threaded cast bronze lift nut to engage the operating stem. Tapered roller bearings shall be provided above and below a flange on the operating nut to support both opening and closing thrusts. Floor stands shall develop their maximum capacity with not greater than a 40-pound pull on the crank or hand wheel. Gears, where required, shall be steel with machined cut teeth designed for smooth operation. The pinion shafts on crank-operated floorstands, either single or double ratio, shall be supported on tapered roller bearings or other approved bearings. All components shall be totally enclosed in a cast iron case and cover. Positive mechanical seals will be provided on the operating nut and the pinion shafts to exclude moisture and dirt and prevent leakage of lubricant out of the hoist. Lubricating fittings shall be provided for the lubrication of all gears and bearings. Floorstands shall include a cast iron pedestal with the input shaft or hand wheel approximately 36 in. above the operating floor. An arrow with the word OPEN shall be cast on the floorstand or hand wheel indicating the direction of rotation to open.
- C. Floorstands for rising stem sluice gates shall have clear, transparent, rigid, plastic stem covers.
- D. Floorstands for non-rising stem sluice gates shall have stem indicators.
- E. Floorstands shall be provided by the valve or gate manufacturer with each valve or gate requiring floorstands.

2.15 T-HANDLE OPERATING WRENCHES

T-handle operating wrenches shall be provided in the number and lengths necessary to permit operation of all valves by operators of average height working in normal positions.

2.16 FLOOR BOXES

- A. The floor boxes shall be cast iron with a bronze bushing of the size necessary to accommodate the extension stem. The boxes shall be suitable for installation in a concrete floor of the thickness indicated on the Drawings.
- B. They shall be similar to those made by Mueller Co., Decatur, IL; Clow Corporation, Chicago, IL; or equal.

2.17 PRESSURE GAUGES

- A. Pressure gauges shall have cast brass cases with bourdon tubes and precision rotary movements of bronze, nickel, or other material suitable to the environment in which they will be located. Dials shall be 6 inches in diameter with a pressure range of 0 to 50 psi. Provide female quick coupler for connection to corporation stop.
- B. Corporation stops shall be similar to Mueller and shall have iron pipe threads with pack joint connection outlets. Provide male quick coupler for attachment of pressure gauge.
- C. Pressure gauges shall have a snuffer to prevent shock damage to gauges. Pressure gauges shall be diaphragm sealed.

2.18 FIBERGLASS LINE MARKER

- A. General:
 - 1. Design: The continuous fiberglass reinforced composite line marker (CRM-375) shall be a single piece marker capable of simple, permanent installation by one person using a manual driving tool. The CRM-375 upon proper installation shall resist displacement from wind and vehicle impact forces. The CRM-375 shall be of a constant flat "T" cross sectional design with reinforcing support ribs incorporated longitudinally along each edge to provide sheeting protection and structural rigidity. The bottom end of the marker shall be pointed for ease of ground penetration.
 - 2. Material: The CRM-375 marker shall be constructed of a durable, UV resistant, continuous glass fiber and marble reinforced, thermosetting composite material which is resistant to impact, ozone, and hydrocarbons within a service temperature range of -40⁰ F to +140⁰ F.
 - 3. Workmanship: The CRM-375 marker shall exhibit good workmanship and shall be free of burns, discoloration, cracks, bulges or other objectionable marks which would adversely affect the marker's performance or serviceability.
 - 4. Marking: Each CRM-375 shall be permanently marked "Sewer Line Below". The letters shall be a minimum of 2 inches in height. A black line shall be stamped horizontally across the front of the marker near the bottom to indicate proper burial depth as shown in the standard detail.
- B. Physical and Mechanical Requirements:
 - 1. Dimensions: The CRM-375 marker shall conform to the shape and overall

dimensions shown in the standard detail.

2. Mechanical Properties: The CRM-375 shall have the minimum mechanical properties as shown in the following table:

Property	ASTM Test Method	Minimum Value
Ultimate Tensile Strength	D-638	50,000 psi
Ultimate Compressive Strength	D-638	45,000 psi
Specific Gravity	D-792	1.7
Weight % Glass Reinforcement	D-2584	50%
Barcol Hardness	D-2583	47

3. Color Fastness: The CRM-375 shall be pigmented throughout the entire cross-section so as to produce a uniform color which is an integral part of the material. Ultraviolet resistant materials shall be incorporated in the construction to inhibit fading or cracking of the delineator upon field exposure.
4. Vehicle Impact Resistance: The Carsonite CRM-375 marker shall be capable of self-erecting and remain functional after being subjected to a series of ten head on impacts by a typical passenger sedan at 35 m.p.h. The CRM-375 shall retain a minimum of 60 percent (60%) of its sheeting.

C. Reflectors:

1. The reflector shall be of impact resistant, pressure sensitive retroreflective sheeting which shall be subject to approval by the Engineer. The sheeting shall be of appropriate color to meet MUTCD requirements.
2. Mounting: The retroreflective sheeting shall consist of a minimum of a three-inch wide strip placed a maximum of two inches from the top of the post unless otherwise specified.

2.19 SURGE RELIEF VALVE

A. General:

1. The angle surge relief valve shall be heavily constructed cast iron body with a ductile iron cover/spacer to withstand severe shock conditions. The body shape shall be 90⁰ angle patten to permit side or downward discharge.
2. The cover/spacer shall provide an air gap between the surge valve and the hydraulic cylinder. The valve stem shall be connected to the hydraulic cylinder by means of a self-aligning universal connector to ensure smooth positive opening without biding during shock opening of the valve.
3. The hydraulic cylinder shall be removable from the valve, without dismantling or removing the valve from the line.
4. Closing speed shall be externally adjustable by means of a micrometer control valve.

5. The valve disc shall be normally closed against the system operating pressure by means of a spring or springs. When the system pressure exceeds the normal operating pressure by 10%, the valve shall open immediately to relieve the pressure surge and close slowly as the system pressure returns to normal, by means of the hydraulic cylinder. The hydraulic cylinder shall be capped on both ends (totally enclosed) to prevent dirt or dust from fouling up the cylinder operation. It shall be fitted with an atmospheric oil reservoir.
6. The shut-off pressure shall be set at the factory, but additional adjustments can be made in the field by increasing or decreasing the tension on the externally adjustable springs.
7. Valve exterior to be painted with primer.
8. All materials shall be certified in writing to conform with ASTM specifications.
9. Valve to be APCO Series 3000 Angle Surge Relief Valve, as manufactured by Valve & Primer Corporation; Schaumburg, Illinois; GA Industries, Inc., or equal.

2.20 FLANGED PRESSURE SENSORS

A. General:

1. The sensor shall be flanged and bolted directly into ANSI flanged pipelines. Face-to-face shall be no greater than a wafer style of a butterfly valve. The flanges shall have thru bolt holes to enable positive alignment in the pipeline. Inside diameter of the sensor shall be the same as the mating pipe with a full thru uninterrupted flow. There shall be no dead ends or crevices and flow passage shall make the sensor self-cleaning.
2. The pressure sensing ring shall measure pressure for 360⁰ around the full inside circumference of the pipeline. The sensing ring shall also be clamped into the body for the full radial width of the sensor. Pressure shall be transmitted to the gauge by a locked in and sealed fluid such as ethylene glycol or silicone oil. The sensor shall have an auxiliary tapped and plugged port to allow filling connection of other equipment.
3. All sensors shall be Series 40, as manufactured by the Red Valve Co., Carnegie, PA., or equal.

2.21 FLAP VALVES

- A. Flap gates shall be entirely constructed of 304 stainless steel. All hardware shall be 304 stainless steel. The frame shall be made of structural members or formed plate welded to form a rigid one-piece frame. The frame shall be of the flange back design suitable for mounting on a concrete wall or standard pipe flange. The gate cover shall be made of structural members or formed plate adequately reinforced to withstand the maximum specified seating head. Seals shall be made of resilient neoprene attached to the body by means of a retainer ring for flaps up to 24-inches. The hinges shall consist of a stainless steel hinge pin and shall have a UHMWPE bushing. Flap valves shall be Fontaine series 60 or equal.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Valves shall be installed as nearly as possible in the positions indicated on the Drawings consistent with conveniences of operating the hand wheel or wrench. All valves shall be carefully erected and supported in their respective positions free from all distortion and strain on appurtenances during handling and installation.
- B. All material shall be carefully inspected for defects in workmanship and material, all debris and foreign material cleaned out of valve openings and seats, all operating mechanisms operated to check their proper functioning, and all nuts and bolts checked for tightness.
- C. Valves and other equipment that do not operate easily or are otherwise defective shall be repaired or replaced at the Contractor's expense.
- D. Valves shall not be installed with stems below the horizontal.
- E. Valves shall be set plumb and supported adequately in conformance with the instructions of the manufacturer. Valves mounted on the face of concrete shall be shimmed vertically and grouted in place. Valves in the control piping shall be installed so as to be easily accessible.
- F. Where chain wheels are provided for remote operation of valves, two S-shaped hooks shall be provided for each valve to enable the chains to be hooked so as not to interfere with personnel traffic.
- G. Valves shall be provided with extension stems where required for convenience of operation. Extension stems shall be provided for valves installed underground and elsewhere so that the operating wrench does not exceed 6 feet in length.
- H. A permanent type gasket of uniform thickness shall be provided between flanges of valves and sluice gates and their wall thimble.
- I. Wall thimbles shall be accurately set in the concrete walls so that the gates can be mounted in their respective positions without distortion or strain.
- J. Plug valves in horizontal sewage and sludge piping shall be installed with the shaft horizontal such that when in the open position, the plug is located in the upper part of the valve body. Valves shall be oriented so that in the closed position, the plug is at the downstream end of the valve.
- K. Floorstand operators and stem guides shall be set so that the stems shall run smoothly in true alignment. Guides shall be anchored firmly to the walls. Distances from the centerlines of gates to the operating level or base of floorstand shall be checked by the

Contractor and adjusted if necessary to suit the actual conditions of installation.

3.02 PAINTING

- A. Valves shall be factory primed and fully coated, inside and out, with epoxy paint in accordance with the valve manufacturer's recommendation.
- B. All valve vault piping, valves, and other metal products that are not stainless steel or hot-dip galvanized shall receive 2-3 mils of 1074 Endurashield II as manufactured by The Tnemec Company, or equal, over the factory primer.

END OF SECTION 02642

SECTION 02731 - GRAVITY SEWERS

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall furnish all labor, material, and equipment necessary to install gravity sewer piping together with all appurtenances as shown and detailed on the Drawings and specified herein.

1.02 RELATED WORK

- A. Section 02222 - Excavation.
- B. Section 02225 - Excavating, Backfilling, and Compacting for Utilities.

PART 2 - PRODUCTS

2.01 PIPE AND FITTINGS

A. Ductile Iron (DI) Pipe:

1. Ductile iron pipe shall conform to ANSI A21.50 (AWWA C150) and ANSI A21.51 (AWWA C151) (latest revision). The pipe shall be designed for an internal working pressure of 150 psi and external loading based on flat bottom trenches without blocks and untamped backfill-laying conditions. The pipe shall have a minimum pressure class of 150 psi.
2. Fittings shall be ductile iron fittings in accordance with AWWA C153.
3. Joints shall be push-on type or mechanical joint type conforming to ANSI A21.11 (AWWA C111). Unless specifically required at designated locations by the Drawings, the type of joint used is optional.
 - a. Push-on joints shall have an annular recess in the pipe socket to accommodate a single rubber gasket. Plain ends shall be suitably beveled to permit easy entry into the bell. The gasket and annular recess of the socket shall be so designed and shaped that the gasket is located in place against displacement as the joint is assembled.
 - b. Mechanical joints shall be bolted and of the stuffing box type and shall consist of a bell with exterior flange and interior recess for the sealing gasket, a pipe or fitting plain end, a sealing gasket, a follower gland, tee-head bolts and hexagon nuts.
4. All ductile iron pipe and fittings shall have the manufacturer's outside asphaltic coating and a cement lining and bituminous seal coat on the inside. Cement mortar lining and bituminous seal coat inside shall conform to ANSI A21.4 (AWWA C104).

5. Pipe shall be furnished in lengths of 16, 16.5, 18, or 20 feet nominal laying lengths. The weight of any single pipe shall not be less than the tabulated weight by more than 5 percent for pipe 12 inches or smaller in diameter, not by more than 4 percent for pipe larger than 12 inches in diameter.
6. The net weight, class or nominal thickness and sampling period shall be marked on each pipe. The pipe shall also be marked to show that it is ductile iron.
7. Pipe shall be as manufactured by U.S. Pipe & Foundry Company, American Cast Iron Pipe Company, or equal.

B. Polyvinyl Chloride (PVC) Pipe:

1. Solid Wall PVC Pipe (SDR 35):
 - a. PVC pipe and fittings less than 15 inches in diameter shall conform to the requirements of ASTM Standard Specifications for Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings, Designation D 3034. Pipe and fittings shall have a minimum cell classification of 12454B or 12454C as defined in ASTM D-1784. All pipe shall have a pipe diameter to wall thickness ratio (SDR) of a maximum of 35.
 - b. PVC pipe and fitting with diameters 18-inch through 27-inch shall conform to the requirements of ASTM D-1784 and ASTM F-679. Pipe and fittings shall have a minimum cell classification of 12454C. The minimum wall thickness shall conform to T-1 as specified in ASTM F-679.
 - c. Joints shall be push-on bell and spigot type using elastomeric ring gaskets conforming to ASTM D 3212 and F 477. The gaskets shall be securely fixed into place in the bells so that they cannot be dislodged during joint assembly. The gaskets shall be of a composition and texture which is resistant to common ingredients of sewage and industrial wastes, including oils and groundwater, and which will endure permanently under the conditions of the proposed use.
 - d. Pipe shall be furnished in lengths of not more than 13 feet. The centerline of each pipe section shall not deviate from a straight line drawn between the centers of the openings at the ends by more than 1/16 inch per foot of length.
 - e. PVC pipe shall not have a filler content greater than ten percent (10%) by weight relative to PVC resin in the compound.
 - f. PVC pipe shall be clearly marked at intervals of 5 feet or less with the manufacturer's name or trademark, nominal pipe size, PVC cell classification, the legend "Type PSM SDR 35 PVC Sewer Pipe" and the designation "ASTM D 3034", or "ASTM F-679". Fittings shall be clearly marked with the manufacturer's name or trademark, nominal size, the material designation "PVC", "PSM" and the designation "ASTM D 3034", or "ASTM F-679".
 - g. PVC pipe shall have a minimum pipe stiffness of 46 psi for each diameter when measured at 5 percent vertical ring deflection and tested in accordance with ASTM D-2412.

- h. Five (5) copies of directions for handling and installing the pipe shall be furnished to the Contractor by the manufacturer at the first delivery of pipe to the job. PVC pipe installation shall conform to ASTM D-2321 latest revision.
 - i. Pipe shall be as manufactured by H & W Pipe Company, or equal.
2. Corrugated Wall PVC Pipe with Smooth Interior:
- a. Corrugated PVC pipe and fittings greater than 15 inches in diameter shall conform to the requirements of ASTM F-949. Pipe and fittings shall have a minimum cell classification of 12454B or 12454C in accordance with ASTM D-1784.
 - b. Joints shall be push-on bell and spigot type using elastomeric ring gaskets conforming to ASTM D 3212 and F 477. The gaskets shall be double sealed so that they cannot be dislodged during joint assembly. The gaskets shall be of a composition and texture which is resistant to common ingredients of sewage and industrial waste, including oils and groundwater, and which will endure permanently under the conditions of the proposed use.
 - c. Corrugated PVC pipe shall be furnished in lengths of 13 or 20 feet. The centerline of each pipe section shall not deviate from a straight line drawn between the centers of the openings at the ends by more than 1/16 inch per foot of length.
 - d. Corrugated PVC pipe shall have a smooth interior.
 - e. PVC pipe shall not have a filler content greater than ten percent (10%) by weight relative to PVC resin in the compound.
 - f. Corrugated PVC pipe shall be clearly marked at intervals of 5 feet or less with the manufacturer's name or trademark, nominal pipe size, PVC cell classification, the plastic "PVC", the designation "ASTM F-949", and extrusion code, including date and location of manufacture. Fittings shall be clearly marked with the manufacturer's name or trademark, nominal size, the material designation "PVC", and the designation "ASTM F-949".
 - g. Corrugated PVC pipe shall have a minimum stiffness of 50 psi when measured at 5 percent vertical ring deflection (tested in accordance with ASTM D-2412), as defined in ASTM F-949.
 - h. Five (5) copies of directions for handling and installing the pipe shall be furnished to the Contractor by the manufacturer at the first delivery of pipe to the job. PVC pipe installation shall conform to ASTM D-2321 latest revision.
 - i. Corrugated PVC pipe shall be A2000 as manufactured by Contech Construction Products, Inc. or approved equal.

C. Truss Pipe:

- 1. Truss pipe and fittings shall conform to the requirements of ASTM D-2680.
- 2. The thermoplastic material shall be rigid PVC plastic and shall be in accordance with ASTM D-1784. PVC plastic shall be manufactured with minimum cell classification of 12454B or 12454C.
- 3. The truss annulus shall be filled with cement perlite concrete (or other inert

filler material exhibiting the same degree of performance as cement pearlite concrete) to form a semi-rigid composite pipe.

4. Truss pipe and fittings shall have a minimum stiffness of 200 psi for each diameter when measured at 5 percent vertical ring deflection and tested in accordance with ASTM D-2412.
5. Joints shall be push-on bell and spigot type using elastomeric ring gaskets conforming to ASTM D-3212 and F-477. The gaskets shall be securely fixed into place in the bells so that they cannot be dislodged during joint assembly. The gaskets shall be of a composition and texture which is resistant to common ingredients of sewage and industrial wastes, including oils and groundwater, and which will endure permanently under the conditions of the proposed use. No solvent cement joints shall be allowed.
6. All field cutting of pipe shall be done in a neat, trim manner using a hand saw per manufacturer's recommendations. Care shall be taken to protect the filler material. All field cuts shall be sealed according to manufacturer's recommendations.
7. Pipe shall be furnished in lengths of not more than 13 feet. The centerline of each pipe section shall not deviate from a straight line drawn between the centers of the openings at the ends by more than 1/16 inch per foot of length.
8. PVC pipe shall be clearly marked at intervals of 5 feet or less with the manufacturer's name or trademark, nominal pipe size, PVC cell classification, the legend "PVC Composite Pipe", the designation "ASTM D-2680", and the extrusion code, including date and location of manufacture. Fittings shall be clearly marked with the manufacturer's name or trademark, nominal size, the material designation "PVC", and the designation "ASTM D-2680".
9. Five (5) copies of directions for handling and installing the pipe shall be furnished to the Contractor by the manufacturer at the first delivery of pipe to the job. PVC pipe installation shall conform to ASTM D-2680 latest revision.
10. Truss pipe shall be PVC truss pipe as manufactured by Contech Construction Products, Inc. or an approved equal.

D. Reinforced Concrete Pipe:

1. All reinforced concrete pipe shall conform to the requirements of ASTM C76-89. Class shall be as shown on the Drawings.
2. Joints shall be bell and spigot type using Forsheda 138 or Forsheda 103 gaskets (or equal) and shall conform to ASTM C443.
3. The pipe shall be furnish in standard lengths of 8 feet to 16 feet.
4. The pipe shall be permanently marked showing the nominal inside diameter, manufacture date, ASTM C76 class, and manufacturer's name. These markings for 30-inch diameter and larger shall be inscribed on the pipe exterior and stenciled on the interior with paint or permanent ink.
5. There shall be no lift holes.
6. Pipe shall be as manufactured by Independent Concrete Pipe Company, equal.
7. Coating and Lining:
 - a. All concrete pipe shall be coated and lined at the pipe manufacturer's plant.

- b. The exterior coating and interior lining shall be a high build multi-component Amine cured Novalac epoxy polymeric coating/lining equal to the Protecto 401 as manufactured by Vulcan Painters, Inc. of Birmingham, AL.
 - c. The coating/lining shall have a permeability rating in accordance with Method A of ASTM E-96-66.
 - d. The surface preparation shall remove all loose laitance, form oils, and other loose materials and include a "brush blast" per SSPC.
 - e. The coating and lining shall be applied in accordance with the manufacturer's requirements and have a minimum dry film thickness (DFT) of:
 - (1) Exterior Coating: 25 mil DFT.
 - (2) Interior Coating: 40 mil DFT.
8. Connection of existing and proposed sewer lines to the reinforced concrete pipe shall be accomplished by the following methods:
- a. Precast concrete fittings with joints using Forsheda 138 or Forsheda 103 gaskets (or equal) conforming to ASTM C443, or
 - b. Core drilling the reinforced concrete pipe and installing a KOR-N-TEE Model 1200 GP flexible watertight connector (or equal) as manufactured by KOR-N-SEAL. Connector shall be made of EPDM rubber. All hardware shall be 304 stainless steel.
- E. High Density Polyethylene Pipe:
- 1. Material: The polyethylene pipe shall be high performance, high molecular weight, high density polyethylene pipe equal to Driscopipe 1000 as manufactured by Phillips Driscopipe, Inc., Richardson, TX, conforming to ASTM D 1248 (Type III, Class C, Category 5, Grade P34). Minimum cell classification values shall be 3 4 5 4 3 4 C as referenced in ASTM D 3350.
 - 2. Physical Properties of Pipe Compound:
 - a. Density - The density shall be no less than 0.941 - 0.955 gm/cm³ as referenced in ASTM D 1505.
 - b. Melt Flow - Flow rate shall not be greater than 0.14gm/10 min when tested in accordance with Method D1238 - Condition E.
 - c. Flex Modulus - Shall be 120,000 to less than 160,000 psi as referenced in ASTM D 790.
 - d. Tensile Strength at Yield - Shall be 3000 - to less than 3500 psi as referenced in ASTM 638.
 - e. ESCR - The stress crack resistance shall be in excess of 1000 hours with less than 20 percent failure when tested in accordance with ASTM D 1693 Condition C.
 - f. Hydrostatic design shall be 1600 psi at 23° C when tested in accordance with ASTM 2837.
 - 3. Owner may request certified lab data to verify the physical properties of pipe or may take random samples and have them tested at an independent laboratory.
 - 4. Rejection: Polyethylene pipe and fittings may be rejected for failure to meet any of the requirements of this Specification.

5. Rating: The polyethylene pipe shall have a manufacturer's recommended hydrostatic design stress rating of 800 psi based on a material with a 1600 psi design basis determined in accordance with ASTM D-2837. Standard method for obtaining hydrostatic design basis for thermoplastic pipe materials.
6. Dimensions: The polyethylene sewer pipe to be nominal I.P.S. with a wall thickness minimum of SDR-32.5. The pipe shall be nominal I.P.S. size.

PART 3 - EXECUTION

3.01 PIPE LAYING

- A. All pipe shall be laid with ends abutting and true to the lines and grades indicated on the Drawings. The pipe shall be laid straight between changes in alignment and at uniform grade between changes in grade. Pipe shall be fitted and matched so that when laid in the trench, it will provide a smooth and uniform invert. Supporting of pipe shall be as set out in Section 02225 and in no case shall the supporting of pipe on blocks be permitted.
- B. Before each piece of pipe is lowered into the trench, it shall be thoroughly swabbed out to insure its being clean. Any piece of pipe or fitting which is known to be defective shall not be laid or placed in the lines. If any defective pipe or fitting shall be discovered after the pipe is laid, it shall be removed and replaced with a satisfactory pipe or fitting without additional charge. In case a length of pipe is cut to fit in a line, it shall be so cut as to leave a smooth end at right angles to the longitudinal axis of the pipe and beveled to match the factory bevel for insertion into gasketed joints. Bevel can be made with hand or power tools.
- C. The interior of the pipe, as the work progresses, shall be cleaned of dirt, jointing materials, and superfluous materials of every description. When laying of pipe is stopped for any reason, the exposed end of such pipe shall be closed with a plywood plug fitted into the pipe bell so as to exclude earth or other material and precautions taken to prevent flotation of pipe by runoff into trench.
- D. All pipe shall be laid starting at the lowest point and installed so that the spigot ends point in the direction of flow.

3.02 JOINTING

All joint surfaces shall be cleaned immediately before jointing the pipe. The bell or groove shall be lubricated in accordance with the manufacturer's recommendation. Each pipe unit shall then be carefully pushed into place without damage to pipe or gasket. All pipe shall be provided with home marks to insure proper gasket seating. Details of gasket installation and joint assembly shall follow the direction of the manufacturer's of the joint material and of the pipe. The resulting joints shall be watertight and flexible. **No solvent cement joints shall be allowed.**

3.03 UTILITY CROSSING CONCRETE ENCASEMENT

- A. At locations shown on the Drawings, required by the Specifications, or as directed by the Engineer, concrete encasement shall be used when the clearance between the proposed sanitary sewer pipe and any existing utility pipe is 18 inches or less. Utility pipe includes underground water, gas, telephone and electrical conduit, storm sewers, and any other pipe as determined by the Engineer.
- B. There are two cases of utility crossing encasement. Case I is applicable when the proposed sanitary sewer line is **below** the existing utility line. Case II is applicable when the proposed sanitary sewer line is laid **above** the utility line. In either case, the concrete shall extend to at least the spring line of each pipe involved.
- C. Concrete shall be Class B (3000 psi) and shall be mixed sufficiently wet to permit it to flow between the pipes to form a continuous bridge. In tamping the concrete, care shall be taken not to disturb the grade or line of either pipe or damage the joints.
- D. Concrete for this Work is not a separate pay item and will be considered incidental to utility pipe installation.

3.04 TESTING OF GRAVITY SEWER LINES

- A. After the gravity piping system has been brought to completion, and prior to final inspection, the Contractor shall rod out the entire system by pushing through each individual line in the system, from manhole to manhole, appropriate tools for the removal from the line of any and all dirt, debris, and trash. If necessary during the process of rodding the system, water shall be turned into the system in such quantities to carry off the dirt, debris and trash.
- B. During the final inspection, the Engineer will require all flexible sanitary sewer pipe to be mandrel deflection tested after installation.
 - 1. The mandrel (go/no-go) device shall be cylindrical in shape and constructed with nine (9) evenly spaced arms of prongs. The mandrel dimension shall be 95 percent of the flexible pipe's published ASTM average inside diameter. Allowances for pipe wall thickness tolerances of ovality (from shipment, heat, shipping loads, poor production, etc.) shall not be deducted from the ASTM average inside diameter, but shall be counted as part of the 5 percent allowance. The contact length of the mandrel's arms shall equal or exceed the nominal diameter of the sewer to be inspected. Critical mandrel dimensions shall carry a tolerance " 0.001 inch.
 - 2. The mandrel inspection shall be conducted no earlier than 30 days after reaching final trench backfill grade provided, in the opinion of the Engineer, sufficient water densification or rainfall has occurred to thoroughly settle the soil throughout the entire trench depth. Short-term (tested 30 days after installation) deflection shall not exceed 5 percent of the pipe's average inside diameter. The

mandrel shall be hand pulled by the contractor through all sewer lines. Any sections of the sewer not passing the mandrel test shall be uncovered and the Contractor shall replace and recompact the embedment backfill material to the satisfaction of the Engineer. These repaired sections shall be retested with the go/no-go mandrel until passing.

3. The Engineer shall be responsible for approving the mandrel. Proving rings may be used to assist in this. Drawings of the mandrel with complete dimensioning shall be furnished by the Contractor to the Engineer for each diameter and type of flexible pipe.
- C. The pipeline shall be made as nearly watertight as practicable, and leakage tests and measurements shall be made. All apparatus and equipment required for testing shall be furnished by the Contractor and the cost shall be included in the unit price bid for pipe and manholes.
1. The Engineer may require the Contractor to smoke test the first section (manhole to manhole) of each size of pipe and type of joint prior to backfilling, to establish and check laying and jointing procedures. The test shall consist of smoke blown into closed-off sections of sewer under pressure and observing any smoke coming from the pipeline indicating the presence of leaks. Other supplementary smoke tests prior to backfilling may be performed by the Contractor at his option; however, any such tests shall not supplant the final tests of the completed work unless such final tests are waived by the Engineer.
 2. Where the groundwater level is more than 1 foot above the top of the pipe at its upper end, the Contractor shall conduct either infiltration tests or low-pressure air tests on the completed pipeline.
 3. Where the groundwater level is less than 1 foot above the top of the pipe at its upper end, the Contractor shall conduct either exfiltration tests or low-pressure air tests on the completed pipeline.
- D. Low pressure air tests shall be made using equipment specifically designed and manufactured for the purpose of testing sewer lines using low-pressure air. The equipment shall be provided with an air regulator valve or air safety valve so set that the internal pressure in the pipeline cannot exceed 8 psig.
1. The test shall be made on each manhole-to-manhole section of pipeline after placement of the backfill. The Engineer or his designated representative must be present to witness each satisfactory air test before it will be accepted as fulfilling the requirements of these Specifications.
 2. Pneumatic plugs shall have a sealing length equal to or greater than the diameter of the pipe to be tested. Pneumatic plugs shall resist internal test pressures without requiring external bracing or blocking.
 3. Low pressure air passing through a single control panel, shall be introduced into the sealed line until the internal air pressure reaches 4 psig greater than the maximum pressure exerted by groundwater that may be above the invert of the pipe at the time of test. However, the internal air pressure in the sealed line shall not be allowed to exceed 8 psig. When the maximum pressure exerted by the groundwater is greater than 4 psig, the Contractor shall conduct only an

infiltration test.

4. At least two minutes shall be allowed for the air pressure to stabilize in the section under test. After the stabilization period, the low-pressure air supply hose shall be quickly disconnected from control panel. The time required in minutes for the pressure in the section under test to decrease from 3.5 to 2.5 psig (greater than the maximum pressure exerted by groundwater that may be above the invert of the pipe) shall not be less than that shown in the following table:

Pipe in Diameter in Inches	Minutes
4	2.0
6	3.0
8	4.0
10	5.0
12	5.5
15	7.5
18	8.5
21	10.0
24	11.5
30 & larger	13.5

5. When the sewer section to be tested contains more than one size of pipe, the minimum allowable time shall be based on the largest diameter pipe in the section, and shall be the time shown in the table reduced by 0.5 minutes.
 6. Reinforced concrete pipe shall be tested in accordance with ASTM C 924 (joint testing shall be in accordance with ASTM C 1103). Test time shall be a function of pipe diameter and the length of installed line to be tested as provided in ASTM C 924.
- E. Infiltration tests shall be made after underdrains, if present, have been plugged and other groundwater drainage has been stopped such that the groundwater is permitted to return to its normal level insofar as practicable.
1. Upon completion of a section of the pipeline, the line shall be dewatered and a satisfactory test conducted to measure infiltration for at least 24 hours. The amount of infiltration, including manholes, tees and connections shall not exceed 200 gallons per nominal inch diameter per mile of sewer per 24 hours.
- F. Exfiltration tests which subject the pipeline to an internal pressure, shall be made by plugging the pipe at the lower end and then filling the line and manholes with clean water to a height of 2 feet above the top of the sewer at its upper end. Where conditions between manholes may result in test pressures, which would cause leakage at the plugs or stoppers in branches, provisions shall be made by suitable ties, braces and wedges to secure the plugs against leakage resulting from the test pressure.
1. The rate of leakage from the sewers shall be determined by measuring the

- amount of water required to maintain the level 2 feet above the top of the pipe.
2. Leakage from the sewers under test shall not exceed the requirements for leakage into sewers as hereinbefore specified.
- G. The Contractor shall furnish suitable test plugs, water pumps, and appurtenances, and all labor required to properly conduct the tests. Suitable bulkheads shall be installed, as required, to permit the test of the sewer. The Contractor shall construct weirs or other means of measurements as may be necessary.
- H. Should the sections under test fail to meet the requirements, the Contractor shall do all work of locating and repairing the leaks and retesting as the Engineer may require without additional compensation.
- I. If in the judgment of the Engineer, it is impracticable to follow the foregoing procedures for any reason, modifications in the procedures shall be made as required and as acceptable to the Engineer, but in any event, the Contractor shall be responsible for the ultimate tightness of the line within the above test requirements.

3.05 INSTALLATION OF HDPE PIPE

- A. Construction Practices:
1. Handling Pipe:
 - a. Pipe shall be stored on clean level ground to prevent undue scratching or gouging.
 - b. Sections of pipe with deep cuts or gouges in excess of 10 percent of the wall thickness shall be removed completely and the ends of pipeline rejoined.
 - c. The handling of the joined pipe shall be in such a manner that the pipe is not damaged by dragging it over sharp and cutting objects.
 2. Pipe Joining:
 - a. Sections of the polyethylene pipe shall be joined into continuous lengths on the job site above the ground. The joining method shall be the butt fusion method and shall be done in strict accordance with the pipe manufacturer's recommendation.
 - b. The hydraulically operated machines shall have a pressure regulator to preset the correct pressure for the desired fusion force, and there shall be an auxiliary system to control "feed" rate for the pipe face-off. Each machine shall be permanently equipped with a chart showing correct fusion pressure for each pipe size and wall thickness (SDR).
 3. Direct Burial Installation:
 - a. The trench and trench bottom shall be constructed in accordance with the Drawings.
 - b. Embedment materials to be used shall be as recommended in ASTM D-2321-74, Section 6.
 - c. The proper bedding practices to be followed shall be subject to those described in ASTM D-2321-74, Section 8.

- d. Installation practices shall be those specified in ASTM D-2321-74, Section 9.

END OF SECTION 02731

SECTION 02732 - SEWAGE FORCE MAINS

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall furnish all labor, material, and equipment necessary to install force main piping together with all appurtenances as shown and detailed on the Drawings and specified herein.

1.02 RELATED WORK

- A. Section 02222 - Excavation.
- B. Section 02225 - Excavating, Backfilling, and Compacting for Utilities.
- C. Section 02733 - Sewage Pump Station.

PART 2 - PRODUCTS

2.01 DUCTILE IRON PIPE (DIP) AND FITTINGS

- A. Ductile iron pipe (DIP) shall conform to ANSI/AWWA C150/A21.50, ANSI/AWWA C151/A21.51 Standard (latest). The pipe shall conform to pressure class 150 unless noted otherwise. All pipe, fittings and joints should be capable of accommodating pressure up to 150 psi. The ductile iron pipe shall be as manufactured by Clow Corporation, U.S. Pipe & Foundry Company, American Cast Iron Pipe Company, or equal.
- B. Fittings shall be ductile iron in accordance with AWWA C153 and have a body thickness and radii of curvature conforming to ANSI A21.10 or ANSI A21.53 for compact fittings and shall conform to the details and dimensions shown therein. Fittings shall have rubber gasket joints meeting the requirements of AWWA C111. Fittings shall be cement-mortar lined and bituminous coated to conform to the latest revision of ANSI/AWWA standards.
- C. Ductile iron flanged joint pipe shall conform to ANSI/AWWA C115/A 21.15 Standard and have a thickness Class of 53. The pipe shall have a rated working pressure of 250 psi with Class 125 flanges. Gaskets shall be ring gaskets with a thickness of 1/8 inch. Flange bolts shall conform to ANSI B 16.1.
- D. Flanged fittings shall meet all requirements of ANSI/AWWA C110/A21.10 and have Class 125 flanges. Fittings shall accommodate a working pressure up to 250 psi and be supplied with all accessories.
- E. All pipe and fittings shall be tar coated outside and shall receive a standard cement lining

with bituminous seal coat on the inside in accordance with ASA Specification A21.40 (AWWA-C104).

- F. Cement mortar lining and seal coating for pipe and fittings, where applicable shall be in accordance with ANSI/AWWA C104/A21.4. Bituminous outside coating shall be in accordance with ANSI/AWWA C151/A21.51 for pipe and ANSI/AWWA C110/A21.10 for fittings.
- G. All ductile fittings shall be rated at 250 psi water working pressure plus water hammer. Ductile iron fittings shall be ductile cast-iron grade 80-60-03 per ASTM Specification A339-55.
- H. Restrained joint pipe and fittings shall be a boltless system equal to "Field Lok" restraining gaskets or "TRFLEX Joint" as manufactured by U.S. Pipe & Foundry Company.
- I. No separate pay item has been established for fittings and no determination of the number of fittings required on the job has been made. The Contractor, during the bidding phase, shall determine the number of fittings required on the job and include the cost of the fittings and installation in the Contract unit price.

2.02 POLYVINYL CHLORIDE (PVC) FORCE MAIN PIPE

- A. Polyvinyl chloride (PVC) pipe for force mains shall be Class 200 (SDR 21) PVC pressure rated pipe with integral bell joints with rubber O-ring seals.
- B. All PVC pipe shall conform to the latest revisions of ASTM D-1784 (PVC Compounds), ASTM D-2241 (PVC Plastic Pipe, SDR) and ASTM D-2672 (Bell - End PVC Pipe). PVC pipe shall have a minimum cell classification of 12454B or 12454C as defined in ASTM D-1784. Rubber gasketed joints shall conform to ASTM D-3139. The gaskets for the PVC pipe joint shall conform to ASTM F-477 and D-1869.
- C. Fittings shall be ductile iron and in accordance with Article 2.01 B of this section.
- D. All pipe and couplings shall bear identification markings that will remain legible during normal handling, storage and installation, which have been applied in a manner that will not reduce the strength of the pipe or coupling or otherwise damage them. Pipe and coupling markings shall include the nominal size and OD base, material code designation, dimension ratio number, ASTM Pressure Class, ASTM designation number for this standard, manufacturer's name or trademark, seal (mark) of the testing agency that verified the suitability of the pipe material for sanitary sewer service. Each marking shall be applied at intervals of not more than 5 feet for the pipe and shall be marked on each coupling.
- E. C-900 PVC Force Main shall comply with AWWA C900-07 and FM 1612. Pipe shall be pressure class 235 psi (DR 18).

2.03 POLYETHYLENE PIPE

- A. Polyethylene pipe shall be of high density, high molecular weight polyethylene and conform to the requirements of ASTM Specification D-3350 (SDR 21) and have recommended designation values of 3-4-5-4-3-4-C. Fittings shall be SDR 9.3.
- B. Pipe shall have dimensions and workmanship in accordance with ASTM F-714.
- C. Polyethylene pipe shall be supplied in standard lengths of at least 12 feet 6 inches. Longer lengths are permitted.
- D. Polyethylene pipe shall be marked with the manufacturer's name, production lot number, ASTM designation, and nominal diameter.
- E. Polyethylene pipe shall be joined by the butt-fusion technique utilizing controlled temperature and pressure to produce a fused, leak-free joint, stronger than the pipe itself in both tension and hydrostatic loading.
- F. Pipe shall be Phillips Driscopipe, or equal.

PART 3 - EXECUTION

3.01 LAYING DEPTHS

In general, force mains shall be laid with a minimum cover of 30 inches, except as otherwise indicated on the Drawings.

3.02 RELATIONSHIP TO WATER LINE

Where a force main and water line cross one another, the force main shall be laid under the water line and encased with concrete in accordance with Section 02731 and as detailed on the Drawings.

3.03 PIPE LAYING

- A. All pipe shall be laid with ends abutting and true to the lines and grades indicated on the Drawings. Pipe shall be fitted and matched so that when laid in the Work, it will provide a smooth and uniform invert. Supporting of pipe shall be as set out in Section 02225 and in no case shall the supporting of pipe on blocks be permitted.
- B. Before each piece of pipe is lowered into the trench, it shall be thoroughly swabbed out to insure it being clean. Any piece of pipe or fitting which is known to be defective shall not be laid or placed in the lines. If any defective pipe or fittings shall be discovered after the pipe is laid, it shall be removed and replaced with a satisfactory pipe or fitting without

additional charge. In case a length of pipe is cut to fit in a line, it shall be so cut as to leave a smooth end at right angles to the longitudinal axis of the pipe. Bevel can be made with hand or power tools.

- C. The interior of the pipe, as the Work progresses, shall be cleaned of dirt, jointing materials, and superfluous materials of every description. When laying of pipe is stopped for any reason, the exposed end of such pipe shall be closed with a plywood plug fitted so as to exclude earth or other material and precautions taken to prevent floatation of pipe by runoff into trench.
- D. Anchorage of Bends:
 - 1. At all tees, plugs, caps and bends of 11-1/4 degrees and over, and at reducers or in fittings where changes in pipe diameter occur, movement shall be prevented by using suitable harness, thrust blocks or ballast. Thrust blocks shall be as shown on the Drawings, with sufficient volumes of concrete being provided; however care shall be taken to leave weep holes unobstructed and allow for future tightening of all nearby joints. Unless otherwise directed by the Engineer, thrust blocks shall be placed so that pipe and fitting joints will be accessible for repair.
 - 2. Bridles, harness or pipe ballasting shall meet with the approval of the Engineer. Steel rods and clamps shall be galvanized or otherwise rust-proofed or painted.
 - 3. No extra pay shall be allowed for work on proper anchorage of pipe, fittings or other appurtenances. Such items shall be included in the price bid for the supported item.

3.04 JOINTING

All joint surfaces shall be cleaned immediately before jointing the pipe. The bell or groove shall be lubricated in accordance with the pipe manufacturer's recommendations. Each pipe unit shall then be carefully pushed into place without damage to pipe or gasket.

All pipe shall be provided with home marks to insure proper gasket seating. Details of gasket installation and joint assembly shall follow the direction of the manufacturer's of the joint material and of the pipe. The resulting joints shall be watertight and flexible.

3.05 TESTING OF FORCE MAINS

- A. The completed work shall comply with the provisions listed herein, or similar requirements which will insure equal or better results. Suitable test plugs, water pump or other equipment and apparatus, and all labor required to properly conduct the tests shall be furnished by the Contractor at no expense to the Owner.
- B. Force main piping shall be pressure tested to 250 percent of the normal system operating pressure or to 150 percent of the rated working pressure of the pipe, whichever is less. At no time shall the test pressure exceed 150 percent of the pipe's rated working pressure. A pipe section shall be accepted if the test pressure does not fall more than 5 percent during the 4-hour period.

- C. All piping shall be tested for leakage at a pressure no less than that specified for the pressure test. The leakage shall be less than an allowable amount determined by the following equation:

$$L = \frac{ND(P)^{1/2}}{7400}$$

Where

- L = allowable leakage (gallon/hour)
- N = number of joints in length of pipeline tested
- D = nominal diameter of pipe (inches)
- P = test pressure (psig)

- D. Should the sections under test fail to meet the requirements, the Contractor shall do all work locating and repairing the leaks and retesting as the Engineer may require without additional compensation.
- E. If in the judgment of the Engineer, it is impracticable to follow the foregoing procedures for any reason, modifications in the procedures shall be made as required and as acceptable to the Engineer, but in any event, the Contractor shall be responsible for the ultimate tightness of the line within the above test requirements.

END OF SECTION 02732

SECTION 02733 - SEWAGE PUMP STATION

PART 1 - GENERAL

1.01 WORK INCLUDED

The Work to be accomplished under this Section of the Specifications consists of the furnishing of all labor, materials, equipment, and services necessary for the construction of duplex pump stations and valve pits, as shown on the Contract Drawings. The station shall include two (2) raw sewage pumps, liquid level sensors, discharge piping, pump mounting plates with sealed discharge connection, bottom rail supports, upper rail supports, lifting chain, aluminum access hatch, electrical controls, and any other items required to make the installation function as its design intent; all installed in, on, or near a precast concrete basin. Structure and dimensions shall be as shown on the Contract Drawings.

1.02 CONTRACTOR REQUIREMENTS

The Contractor shall submit certified shop and erection drawings, and data regarding pump and motor characteristics and performance. The data shall include performance curves based on actual shop tests of pumping units, which show that the units meet the specified requirements for head, capacity, efficiency, and horsepower for the various capacities specified. Except as hereinafter specified, certified tests of mechanically duplicate units will be acceptable. Curves shall be submitted on 8-1/2 inch by 11-inch sheets. For units of the same size and type, only curves for a single unit need be provided. Shop drawings for accessory equipment shall also be submitted. Shop drawings for electrical equipment and systems furnished herein shall be provided as specified under electrical work.

- a. Pump Performance Curves.
- b. Station Drawings for Accessories.
- c. Electrical Motor Data.
- d. Control Drawing and Data.
- e. Typical Installation Guides.
- f. Technical Manuals.
- g. Parts List.
- h. Printed Warranty.
- i. Manufacturer's Equipment Storage Recommendations.

1.03 RELATED WORK

- A. Section 02642 - Sewage Valves and Gates
- B. Section 02731 - Gravity Sewers.

- C. Section 02732 - Sewage Force Mains.
- D. Section 02735 - Manholes.
- E. Section 03310 - Structural Concrete.
- F. Section 16000 - Electrical Work.

PART 2 - PRODUCTS

2.01 SOLIDS-HANDLING PUMPS

A. SCOPE

This specification details the mechanical and electrical requirements for squirrel-cage, induction motors, both single and poly-phase, designed for wet well submersible pump applications in water and sewage. The intent of this specification is to define submersible premium quality pumps which will provide efficient operation with high mechanical integrity under adverse operating conditions for maximum life and minimum life cycle costs. This specification regarding the solids-handling pumps covers sewage wet well applications defined by the National Electrical Code (NEC®) as class 1, Division 1, hazardous locations section 501-8(a) requiring explosion-proof construction.

Pumps shall be manufactured by KSB, or equal and as indicated in the following schedule:

Pump Station	Model Number	Max HP	Manufacturer	Design Point (C-140)	Impeller Size
Fibrotex	KSB KRT 1750rpm 6-inch	50	KSB	415 GPM @ 132' TDH	6.5"

The pump design shall be such that the pumping units shall be automatically connected to the discharge piping when lowered into place on a discharge connection, and shall be easily removed for inspection or service, requiring no nuts or bolts or other fasteners to be removed for this purpose and no need for personnel to enter the wetwell.

B. SUBMERSIBLE MOTOR CONSTRUCTION

All castings in the stator housing construction shall be ASTM A48 Grey Cast Iron Class 30. The submersible motor stator and rotor shall be of an induction type, NEMA® B (Three-Phase) or NEMA® L (Single-Phase) squirrel cage design. The stator is to be slip-

fit in watertight oil-filled, TENV chamber to provide the maximum heat dissipation. The armature assembly of the motor must meet or exceed the balance specification as defined in ISO 1940 G2.5. The stator housing shall be filled with clean, high dielectric oil that lubricates bearings and seals, transferring heat from windings and rotor to the outer cast housing. The use of proprietary Keen oil ensures industry-low operating temperatures.

The insulation system of the submersible motor design shall be of Class F as defined in NEMA[®] MG-1 and established in accordance with IEEE[®] std. 1 rated for 311°F (155°C). To include in the insulation system are the stator windings which shall be constructed of material to meet the Class F insulation system. The insulation varnish in the system must be applied in a dip and bake manner. The stator lead material must meet or exceed the Class F insulation system. The thermal limiting device shall be designed, secured to the stator and constructed to meet the Class F insulation system. The thermal limiting devices shall be attached to each phase winding, as well as used in conjunction with and supplemental to external motor overload protection and must be connected to the motor control center.

The operation of the motor shall be designed for intermittent duty handling pumped media of 140°F (60°C) ambient and shall not exceed NEMA[®] Class B operating temperature rise of 176°F (80°C). The motors design shall be capable of 15 evenly spaced starts per hour during operation in accordance to regulations. A combined service factor in combination with effect of voltage, frequency and specific gravity, shall be at a minimum of 1.20. The acceptable voltage variation of the motors design is +/- 10%, while its acceptable frequency variation is +/- 5%. Therefore, the voltage unbalance must not exceed 1% as defined per NEMA[®] M6-1 12.45, while the current unbalance must not exceed 5%. The horsepower of the motor shall be adequately designed to be non-overloading across the entire pump performance curve, to include pump shut-off and pump run-out. All bolted connections in the submersible motor construction shall be secured with 304 stainless steel fasteners, and the secured joints in the construction shall be compression fitted with nitrile o-rings. All in all, the submersible motor and pump must be designed, constructed, and assembled by the same manufacturer.

C. SUBMERSIBLE MOTOR CORD ENTRY CONSTRUCTION

The submersible motors cord entry housing shall be ASTM[®] A48 Grey Cast Iron Class 30. The power and control cables shall be secured and sealed to the submersible motor. Construction shall be of a method to provide anti-wicking barriers to the submersible motor. The outer jacket of the power and control cables shall be sealed with an agency-approved, watertight strain relief cord grip fitted with a nitrile compression grommet. The connections between the power cable and the stator leads and control cable and the internal motor control leads shall be potted and encapsulated in a two-part epoxy in the cord entry system. All bolted connections in the cords entry construction shall be secured with 304 stainless steel fasteners, and the secured joints in the construction shall be compression fitted with nitrile o-rings. The cord entry housing shall be fitted with a stainless steel lifting bale sized and of adequate design to securely lift the complete construction of the submersible pump. The power and control cables shall be jacketed in

a material suitable for submersion, oil resistant, and be flexible for portable installation. The cable sizing shall be in accordance to NEC[®] specifications, and the power and control cables shall be recognized by Underwriters Laboratory[®] (UL) and Canadian Standard Association[®] (CSA) and will be delivered in a standard length of 40 foot.

D. MECHANICAL SEALS

Each pump shall be constructed with a tandem mechanical shaft seal system incorporating two independent shaft seal assemblies. The seals shall operate in a lubricant reservoir that hydro-dynamically lubricates the seal faces at a constant rate. Inboard and outboard seal construction shall be of the following material:

- a. The primary stationary ring shall be constructed of silicon carbide face material.
- b. The primary rotating ring shall be constructed of silicon carbide face material.
- c. Elastomers shall be constructed of Nitrile materials.
- d. Metal components shall be constructed of stainless steel for corrosion resistance.

The inboard shall be hydro-dynamically lubricated and operated in a sealed oil reservoir. Therefore, the inboard seal chamber seal shall be designed and constructed to prevent lubricant over filling and provide adequate lubricant expansion to avoid over-pressuring of the seal. Ultimately, the pump shall be capable of operating in the clockwise or counter clockwise direction, as well as, operating in a dry environment without damage to the seal faces.

E. PUMP BEARINGS

The pump bearings shall be designed to an ABEC[®] System 1 or better. Each pump shall be constructed with a three-bearing design. The upper bearing shall be a Conrad type, single row, deep groove ball bearing designed to adequately handle the required radial loads. The lower bearing shall be a Conrad type, single row, deep groove ball bearing designed to adequately compensate for the axial loads and radial forces. An additional sleeve bearing shall be constructed of SAE 841 material and is mounted directly above the lower seal to take radial loads and act as a flame path for the seal chamber. The pump bearings shall be designed to deliver a minimum B-10 bearing life of 50,000 hours when operation is within the limitations of the manufacturer's performance curve.

F. PUMP SHAFT

The pump shaft shall be an extension of the motor shaft. Any other construction that would include coupling of two shafts is not acceptable. The pump shaft shall be a Ferritic grade AISI[®] Type 400 series stainless steel. The pump shaft material crystal structure shall be body centered cubic (bcc), and the pump shaft shall be of a ferromagnetic material as well.

G. IMPELLER

The impeller material shall be ASTM[®] A536 ductile cast iron. ASTM[®] A48 grey cast iron shall be unacceptable. The design shall be one-piece, 10-vane (3450) or 8-vane (1750 and 1150), vortex flow and dynamically balanced to ISO 1940 G6.3. The impeller shall be designed with pump out vanes on the back shroud of the pump impeller to prevent the pump media from entering the outboard seal cavity. The impeller shall be keyed to the pump shaft and retained with a bolt and washer. All wetted fasteners shall be of a corrosion restraint stainless steel material. The mass moment of inertia calculations shall be provided by the pump manufacturer upon request.

H. VOLUTE CASE

The volute case material shall be ASTM[®] A48 grey cast iron. The case's design shall be a single piece and a modified constant velocity. It will be constructed of smooth passage ways large enough any solid that can enter the impeller. The discharge is to be of a centerline discharge configuration with a 4" ANSI[®] standard Class 125, 8-bolt configuration. The horizontal discharge is standard if specifying the K4RN model. The vertical discharge volute is standard if specifying the K4RNV model. Vertical discharge to have support legs for floor mounting that are 4" NPT connection standard, with optional bolt-on plate for vertical ANSI[®] Class 125 flange.

2.02 LIQUID LEVEL CONTROLS

The liquid level of the wetwell shall be measured and controlled by a model 700 stainless steel level transducer manufactured by KPSI, or equal. The transducer shall be housed in a PVC stilling well.

Two (2) float sensors, supported by a stainless steel float bracket, shall serve as an independent backup system as shown on the drawings. The backup float system shall be designed such that the transducer system serves as the primary control system and only if the transducer AND/OR transducer controller is non-responsive does an independent "backup" float/control system operate. The upper float shall serve as "ALARM" and shall also initiate the operation of both pumps with a five second delay between the start of each pump. The lower float shall serve as "ALL OFF" and shall also silence the alarm. The level control system shall be manufactured by RSJ Rhombus, or equal.

All systems must be operated and installed in accordance with Division 16 as well as the manufacturer's instructions.

2.03 BASIN

The wetwell and valve pit basins shall be constructed of a monolithic precast manhole bottom section of the appropriate thickness, precast manhole barrels, and a precast manhole top. The wetwell shall have a Xypex, or equal admixture in the concrete mix when cast to help prevent hydrogen sulfide corrosion.

2.04 ACCESS FRAME AND COVER

Access hatch assemblies shall be installed in the top slab of the wetwell and valve pit at the location shown on the Drawings. Frames and covers shall be fabricated of aluminum and shall be rated for 300 psf and have a bitumastic coating on all surfaces that are in contact with concrete. Frame shall support guide rails and be securely mounted over the pumps and valves. Covers shall be provided with lifting handle and safety latch to hold the cover in the 90-degree open position. Locking hasps shall be provided with lock and two (2) keys. Covers shall be of the checkered plate design. Wetwell frame and cover shall be sized in accordance with the Drawings and the pump manufacturer's requirements. Hatch shall be as manufactured by the Bilco Company, or equal.

2.05 PIPE AND FITTINGS

- A. Discharge piping and fittings within the wetwell and valve pit shall be ductile iron with flanged joints and shall comply with the requirements for force main piping in Section 02732. Pipes from the wetwell to point of connection with force main shall be ductile iron with compression or mechanical joints. All flange ductile iron piping inside the wetwell shall be assembled with stainless steel bolts and receive one coat of bituminous coating over the factory primer.
- B. Gravity influent pipe from collection lines to the wetwell shall comply with the requirements of Section 02731.

2.06 VALVES, SLEEVES, AND PRESSURE GAUGES

- A. Check valves, plug valves, tapping sleeves, and pressure gauges shall be in accordance with Section 02642.
- B. Corporation stops shall be similar to Ford Products and shall have iron pipe threads with pack joint connection outlets. Provide male quick coupler for attachment of pressure gauge.

2.07 ELECTRICAL CONTROLS

- A. See electrical schematic drawings and Specification Division 16 for power and control requirements.

PART 3 - EXECUTION

3.01 GENERAL

The Contractor shall furnish and install as detailed, at the elevations given and where shown on the Drawings, complete duplex, pump stations capable of handling raw, unscreened domestic sewage. The stations shall include submersible non-clog sewage pumps, liquid level sensors, discharge piping, valves, electrical controls and alarm

system, and a precast concrete wet well and valve pit.

3.02 BEDDING, BACKFILL AND FINISH GRADING

- A. Bedding shall be as shown on the drawings. Class I (No. 9 crushed stone aggregate) backfill material shall be placed around the pump station to within 18 inches of the surface of the surrounding ground, with sufficient allowance for settlement. The remaining fill shall be earth material free of rocks in the areas of piping and excavated material in all other areas. Rock and/or shale excavation may be placed in the top 18 inches of fill, but shall not be above piping or any closer than 12 inches from finished grade.
- B. All fill shall be placed so as to load structures symmetrically. Rough grading shall be held below finish grade and then topsoil which has been stockpiled in work of Section 02211, shall be evenly spread over the surface.
- C. Grading shall be brought to the levels shown on the Drawings or to elevations established by the Engineer. Final dressing shall be accomplished by hand work or machine work, or a combination of these methods as may be necessary to produce a uniform and smooth finish to all parts of the re-grade.
- D. The entire disturbed area around the pump station shall be seeded in accordance with Section 02930.

3.03 PUMP TESTS

- A. The Contractor shall furnish sworn certificates to the effect that the pump castings have passed the hydrostatic pressure tests hereinbefore specified.
- B. Pump tests shall be conducted on **each** pump as hereinafter specified. During each test, the pump shall be run at each head condition for a sufficient time to permit accurate determination of discharge, head, and power input. Certified copies of the test data shall be furnished to the Engineer for review prior to shipment. All tests shall be run in accordance with the Standards of the Hydraulic Institute.

3.04 ACCEPTANCE TESTS

- A. After installation of the pumping equipment, and after inspection, operation, testing, and adjustment have been completed by the manufacturer's representative, each pump shall be given a running test in the presence of the Engineer during which it shall determine its ability to operate without vibration or overheating, and to deliver its rated capacity under the specified conditions. During the tests, observations shall be made of head, capacity, and motor input. All defects or defective equipment revealed by or noted during the tests shall be corrected or replaced promptly at the expense of the Contractor, and if necessary, the tests shall be repeated until results acceptable to the Engineer are obtained. The Contractor shall furnish all labor, piping, equipment, and materials necessary for

conducting the tests.

- B. All adjustments necessary to place the equipment in satisfactory working order shall be made at the time of the above tests.
- C. The Contractor shall provide water for testing.
- D. In the event that the Contractor is unable to demonstrate to the satisfaction of the Engineer that the units will satisfactorily perform the service required and that they will operate free from vibration and heating, the pumping units may be rejected. The Contractor shall then remove and replace the equipment at his own expense. The limits of vibrations as set forth in the 13th Edition of the Standards of the Hydraulic Institute shall govern. Field service report shall include all vibration readings made.

3.05 SPARE PARTS

- A. The Contractor shall furnish and deliver to the Owner at the site of the Work the following spare parts, all of which shall be identical and interchangeable with similar parts installed in the Work.
- B. The Contractor shall provide for **each** pump the following spare parts:
 - 1. One (1) Repair kit to include mechanical seals, bearings, and gaskets/o’rings.
- C. Spare parts shall be packed in suitable boxes or containers bearing labels clearly designating the contents and the piece of equipment for which they are intended.
- D. Spare parts shall be delivered at the same time as the equipment to which they pertain. The Contractor shall properly store and safeguard such spare parts until completion of the Work, at which time they shall be delivered to the Owner.

3.06 TOOLS AND MANUALS

- A. Furnish one (1) complete set of tools required for routine maintenance, together with any special tools required for such purpose. Tools shall be supplied in a substantial steel tool box.
- B. The manufacturer shall further provide two (2) copies of a complete and detailed Installation and Maintenance Manual. This manual shall cover, in addition to installation and general operating procedures, the operation, maintenance, and servicing procedures of the major individual components provided with the pumping equipment. The manual shall be shipped with the pumps.

3.07 WARRANTY

- A. The manufacturer shall provide a full five (5) year warranty including all parts and labor

from the date of acceptance that all equipment will be free from defects in design, material, and workmanship.

- B. Warranties and guarantees by the suppliers of various components in lieu of a single source responsibility by the manufacturer will not be accepted. The manufacturer shall assume prime responsibility for the guarantee of the station and all components.
- C. In the event a component fails to perform as specified or is proven defective in service during the guarantee period, the manufacturer shall provide a replacement part without cost to the Owner. He shall further provide, without cost, such labor as may be required to replace, repair or modify major components such as the station structure, pumps, pump motors, sewage piping manifold, etc. After start-up service has been performed, the labor to replace accessory items shall be the responsibility of others.
- D. The replacement or repair (including cost of parts and labor) of those items normally consumed in service, such as pump seals, oil, grease, etc., shall be considered as part of routine maintenance and station upkeep.
- E. It is not intended that the manufacturer assume responsibility for contingent liabilities or consequential damages of any nature resulting from defects in design, material, workmanship or delays in delivery, replacement, or otherwise.

END OF SECTION 02733

SECTION 02930 - SEEDING AND SODDING

PART 1 - WORK INCLUDED

1.01 CLEAN-UP

Upon completion of the Project, the Contractor shall remove all debris and surplus construction materials resulting from his work. The Contractor shall grade the ground along each side of the pipe trenches and/or structures in a uniform and neat manner leaving the construction area in a shape as near as possible to the original ground line, or as shown on the Drawings.

PART 2 - PRODUCTS

2.01 SEED

Grass seed shall be mixed and guaranteed by the supplier to consist of the following:

Annual Rye	60 percent
Kentucky Bluegrass	20 percent
Falcon Fescue	20 percent

2.02 TOPSOIL

Topsoil shall be material stripped and stored under work of Section 02200 and shall be used for all work under this Section. If the quantity of stored topsoil is inadequate or if none has been salvaged from the Project site, the Contractor shall furnish at his own expense sufficient topsoil to properly install all work as specified herein. Topsoil shall be original surface loam obtained from well drained areas from which topsoil has not been removed previously, either by erosion, clearing and removal of trees or mechanical means. It shall not contain subsoil material and shall be clean and free of clay lumps, roots, stones or similar substances more than 2 inches in any dimension, debris, discarded fragments of building materials or weeds and weed seeds.

2.03 SOIL IMPROVEMENTS

- A. Commercial fertilizers shall be of analyses specified, or as recommended by the Agricultural Extension Service for treatment of topsoil in the area from which removed, and shall conform to the applicable state fertilizer laws. Fertilizer shall be uniform in composition, dry and free flowing, and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis. Any fertilizer which becomes caked or otherwise damaged, making it unsuitable for use, will not be accepted.

- B. Lime, if recommended for soil treatment by the Agricultural Extension Service, shall be ground limestone (Dolomite) containing not less than 85 percent of total carbonates, and shall be ground to such a fineness that 50 percent will pass through a 100-mesh sieve, and 90 percent will pass through a 20-mesh sieve. Coarser material shall be acceptable provided that required rates of application are increased proportionally on the basis of quantities passing the 100-mesh sieve.

PART 3 - EXECUTION

3.01 SEEDING AND SODDING

- A. After installation of the Project, topsoil shall be spread evenly to a minimum 4-inch depth and lightly compacted. No topsoil shall be spread in a frozen or muddy condition.
 - 1. Any stored topsoil remaining after work is in place shall be disposed of by the Contractor as directed by the Engineer.
- B. Soil improvement shall be made if and as recommended by the Agricultural Extension Service prior to seeding.
 - 1. Ground limestone, if required, shall be applied at the recommended rates per square yard and shall be thoroughly mixed into the topsoil.
 - 2. Fertilizers, if required shall be of analysis and rates per square yard as recommended in the topsoil analysis and shall be mixed lightly in the top few inches of topsoil.
- C. Immediately before any seed is to be sown, the ground shall be scarified as necessary and shall be raked until the surface is smooth, friable and of a uniformly fine texture. Areas shall be seeded evenly with a mechanical spreader at a rate of 2 pounds per 1,000 square feet, lightly raked and watered with a fine spray.
- D. After seed has been distributed, the Contractor shall cover areas that are likely to washout with straw to a depth of 1-1/2 inches.
- E. Seeded areas shall be protected and maintained by watering, regular mowing and reseeded as may be necessary to produce a uniform stand of grass. Maintenance shall continue throughout the guarantee period until a dense, uniform turf is established.
- F. All paved streets, roads, sidewalks, curbs, fences, stonewalls, lawns, etc., disturbed during construction shall be restored, repaired, or replaced to as good a condition as existed prior to construction. All materials and workmanship shall conform to standard practices and specifications of the Owner and/or the Kentucky Department of Highways, whichever applies.
- G. The Contractor shall remove from the site all equipment, unused materials and other items at his expense. The construction site shall be left in a neat, orderly condition,

clear of all unsightly items, before the Work is finally accepted.

END OF SECTION 02930

Division 3 – Concrete

SECTION 03100 - CONCRETE FORMWORK

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Formwork for cast-in-place concrete, with shoring, bracing, and anchorage.
- B. Openings for other affected work.
- C. Form accessories.
- D. Stripping forms.

1.02 RELATED WORK

- A. Section 03210 - Reinforcing Steel.
- B. Section 03251 - Expansion and Contraction Joints.
- C. Section 03310 - Structural Concrete.

1.03 REFERENCES

- A. ACI 301 - Specifications for Structural Concrete for Buildings.
- B. ACI 347 - Recommended Practice for Concrete Formwork.
- C. PS 1 - Construction and Industrial Plywood.
- D. ACI 318 - Building Code Requirements for Reinforced Concrete.
- E. ACI 350 R - Environmental Engineering Concrete Structures.

1.04 SYSTEM DESCRIPTION

Design, engineer and construct formwork, shoring, bracing to meet design and code requirements so that resultant concrete conforms to required shapes, lines, dimensions and tolerances.

1.05 QUALITY ASSURANCE

Construct and erect concrete formwork in accordance with ACI 301 and 347, latest revisions.

PART 2 – PRODUCTS

2.01 FORM MATERIALS

- A. Plywood; Douglas Fir species; medium density overlaid one side grade; sound, undamaged sheets with straight edges.
- B. Glass fiber fabric reinforced plastic forms; matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to structural tolerances and appearance of finished concrete surface.
- C. Forms shall be sufficiently rigid to prevent displacement or sagging between supports and so constructed that the concrete will not be damaged by their removal. The Contractor shall be entirely responsible for their adequacy.
- D. For surfaces to be given a rubbed finish, the form surface in contact with the concrete shall be made of heavy gage metal, new plywood (used plywood may not be used), tempered wood fiberboards with smooth surface, or similar material. Metal forms or form linings shall have square edges so that the concrete will not have fins or fluting. Forms shall not be pieced out by use of material different from those in the adjacent form or in such manner as will detract from the uniformity of the finished surface.
- E. For surfaces other than those to be given a rubbed finish, forms shall be made of wood, metal, or other acceptable material. Wooden forms shall be constructed of sound lumber or plywood of suitable dimensions, free from knotholes and loose knots. Plywood shall be reasonably good as accepted. Metal forms shall be of an acceptable type for the work involved. Edges of forms in contact with concrete shall be flush within 1/16-inch.
- F. Forms for walls, columns, or piers shall have removable panels at the bottom for cleaning, inspection, and scrubbing in of bonding grout. Forms for thin sections (such as walls or columns) of considerable height shall be arranged with suitable openings so that the concrete can be placed in a manner that will prevent segregation and accumulations of hardened concrete on the forms or reinforcement above the fresh concrete, unless special spouts are used to place concrete, and so that construction joints can be properly keyed and treated.
- G. Forms for exposed surfaces shall be built with 3/4-inch chamfer strips attached to produce smooth, straight chamfers at all sharp edges of concrete.
- H. All forms shall be oiled with an acceptable nonstaining oil or liquid form coating before reinforcement is placed.
- I. Before form material is reused, all surfaces that are in contact with the concrete shall be thoroughly cleaned, all damaged places repaired, and all projecting nails withdrawn.

2.02 FORMWORK ACCESSORIES

- A. Form ties to be encased in concrete shall not be made of through bolts or common wire, but shall be made and installed as to embody the following features:
 - 1. After removal of the protruding part of the tie, there shall be no metal nearer than 1 inch to the face of the concrete.
 - 2. That part of the tie which is to be removed shall be at least 1/2-inch in diameter, or if smaller, it shall be provided with a wood or metal cone 1 inch long placed against the inside of the forms. Cones shall be carefully removed from the concrete after the forms have been stripped.
 - 3. Ties which pass through walls subject to hydrostatic pressure shall be provided with acceptable water stops, such as washers, securely fastened to the ties.
- B. Form Release Agent: Colorless material which will not stain concrete, absorb moisture or impair natural bonding or color characteristics of coating intended for use on concrete. Form oil shall be placed prior to reinforcing steel when possible and surplus oil on form surfaces or reinforcing steel shall be removed.
- C. Fillets for Chamfered Corners: Chamfer strips shall be 1-inch, 45-degree angle with a leg, polyvinyl chloride strips by Greenstreak, Inc. St. Louis, MO, or equal.
- D. Dovetail Anchor Slots: Minimum 10 gage thick galvanized steel; foam filled; release tape sealed slots; bent tab anchors securable to concrete formwork.
- E. Nails, spikes, lag bolts, through bolts, anchorages: Sized as required of strength and character to maintain formwork in place while placing concrete.
- F. Tapered tie-through bolts that will not remain encased in concrete may be used to secure concrete forms upon review and approval by the Engineer. A watertight sure plug with non-shrink grout (dry pack) shall be used to fill the void made by the tapered tie-through bolt. The vinyl plug shall be as manufactured by Dayton Superior Corporation, Miamisburg, Ohio, or equal. Installation shall be in accordance with the manufacturer's recommendation and as approved by the Engineer.

PART 3 - EXECUTION

3.01 INSPECTION

Verify lines, levels and measurements before proceeding with formwork.

3.02 PREPARATION

Earth forms not permitted except for continuous strip footings of buildings.

3.03 ERECTION

- A. Provide bracing to ensure stability of formwork. Strengthen formwork liable to be overstressed by construction loads.
- B. Camber slabs and beams to achieve ACI 301 tolerances.
- C. Provide temporary ports in formwork to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain. Close ports with tight fitting panels, flush with inside face of forms, neatly fitted so that joints will not be apparent in exposed concrete surfaces.
- D. Concrete surfaces not exposed to view shall be formed with sound tight lumber or other material producing equivalent finish.
- E. Concrete surfaces to be exposed to view shall be formed with material that is not reactive with concrete surfaces and shall be equivalent in smoothness and appearance to that produced by new plywood panels conforming to PS 1, exterior type Grade B-B.

3.04 APPLICATION OF RELEASE AGENT

Apply form release agent on formwork in accordance with manufacturer's instructions. Apply prior to placing reinforcing steel, anchoring devices, and embedded items.

3.05 INSERTS, EMBEDDED PARTS, AND OPENINGS

- A. Provide formed openings where required for work embedded in or passing through concrete.
- B. Coordinate work of other sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts.
- C. Install accessories in accordance with manufacturer's instructions, level and plumb. Ensure items are not disturbed during concrete placement.

3.06 FORM REMOVAL

- A. Do not remove forms and bracing until concrete has sufficient strength to support its own weight and construction and design loads which may be imposed upon it. Remove load supporting forms when concrete has attained 75 percent of required 28-day compressive strength, provided construction is reshored.
- B. Reshore structural members due to design requirements or construction conditions to permit successive construction.
- C. Remove formwork progressively so that no unbalanced loads are imposed on structure.

D. Do not damage concrete surfaces during form removal.

3.07 CLEANING

A. Clean forms to remove foreign matter as erection proceeds.

B. Ensure that water and debris drain to exterior through clean out ports.

C. During cold weather, remove ice and snow from forms. Do not use deicing salts. Do not use water to clean out completed forms unless formwork and construction proceed within heated enclosure. Use compressed air to remove foreign matter.

END OF SECTION 03100

SECTION 03310 - STRUCTURAL CONCRETE

PART 1 - GENERAL

1.01 WORK INCLUDED

The work in this section shall include all formwork, shoring, bracing, anchorage, concrete reinforcement and accessories for cast-in-place concrete.

1.02 GENERAL REQUIREMENT

All concrete construction shall conform to all applicable requirements of ACI 301, ACI 318 and ACI 350 R, except as modified by the supplemental requirements specified herein.

1.03 RELATED WORK

Section 02222 - Excavation.

1.04 REFERENCES

- A. The Contractor shall obtain and have available in the field office at all times the following references:
1. Specifications for Structural Concrete for Building ACI 301 (latest revision).
 2. Field Reference Manual: Specifications for Structural Concrete for Buildings ACI Sp-15(88).
 3. Manual of Standard Practice - CRSI (latest revision).
 4. Placing Reinforcing Bars - CRSI (latest revision).
 5. Building Code Requirements for Reinforced Concrete ACI 318.
 6. Environmental Engineering Concrete Structures ACI 350R.
- B. The following standard shall also apply to this work:
1. ASTM C-143.
 2. ASTM C-150.
 3. ASTM C-33.
 4. ASTM C-260.
 5. ASTM C-494.
 6. ASTM A-615.
 7. ASTM D-638.
 8. ASTM D-695.
 9. ASTM D-570.
 10. ASTM D-1252.
 11. ASNI A-116.1.
 12. ASTM A-120.
 13. ASTM C-94.

14. ASTM D-2146.
15. Federal Specifications FF-S-325.

1.05 SUBMITTALS

- A. The Contractor shall submit the following data to the Engineer for review:
 1. Proposed mix designs, test results, plotted curves and all other substantiating data as required by Sections 3.8 and 3.9 of ACI 301.
 2. Mix designs for all mixes proposed or required to be used, including all mixes containing admixtures.
 3. A certified copy of the control records of the proposed production facility establishing the standard deviation as defined in Section 3.9 of ACI 301.
- B. Certification attesting that admixtures equal or exceeds the physical requirements of ASTM C-494 for Type A admixture and when required, for Type D admixture.
- C. Notarized certifications by the manufacturer that epoxy bonding adhesive meets the specification contained herein.
- D. Drawings showing locations of all proposed construction joints.
- E. Shop drawing for reinforcing steel showing bar schedules, location, and splices.

1.06 QUALITY ASSURANCE

- A. Consistency:
 1. Concrete shall be of such consistency that it can be worked readily into all parts of the forms and around embedded work, without permitting the materials to segregate, or free water to collect on the surface. Consistency shall be measured by the ASTM Standard Test Method for Slump of Portland Cement Concrete, Designation C143-78. The consistency of concrete shall be as given in Table I.
 2. Slump tests shall be made in the field by the Contractor, as directed by the Engineer.
- B. Compression Tests:
 1. During the progress of the work, at least one set of four compression test cylinders shall be made for each 50 cubic yards of concrete or major fraction thereof, and not less than one such set for each type of concrete for each days' pouring. Cylinders made in the field shall be made and cured in accordance with ASTM Standard Method of Making and Curing Concrete Test Specimens in the Field, Designation C31-69, except that wherever possible molds shall be left on cylinders until they have reached the laboratory.
 2. One (1) cylinder of each set shall be broken in accordance with ASTM C-39 at seven (7) days and two (2) at twenty-eight (28) days. Two (2) copies of these test results shall be submitted to the Engineer on the same day of the tests. The remaining cylinder shall be reserved for future testing if required.

3. On evidence of these tests, any concrete that fails to meet the specified strength requirements shall be strengthened or replaced as directed by the Engineer at the Contractor's expense.
- C. Inserts in Concrete by Other Trades:
1. All trades shall be notified, at the proper time, to install items to be embedded in concrete.
 2. All castings, inserts, conduits, and other metalwork shall be accurately built into or encased in the concrete by the Contractor as directed and all necessary precautions shall be taken to prevent the metalwork from being displaced or deformed.
 3. Anchor bolts shall be set by means of substantial templates.
 4. The Contractor shall build into new concrete against which facing brick or tile is to be laid, suitable, acceptable, non-corrodible metal, dovetail grooves for ties for securing the brickwork to the concrete.
- D. Testing:
1. All testing shall be in accordance with provisions of ACI 301.
 2. Testing services listed in ACI 301 Sections 16.3, 16.4 and 16.5 shall be performed by a testing agency acceptable to the Engineer. Testing services to meet the requirements of ACI shall be paid for by the Contractor at his expense. Test shall be made for each 50 cubic yards of concrete and/or each day concrete is placed.
- E. Additional Requirements:
1. Unless otherwise directed by the Engineer, the vertical surfaces of all footings shall be formed. Excavations and reinforcement for all footings shall have been inspected by the Engineer before any concrete is placed.
 2. The installation of underground and embedded items shall be inspected before slabs are placed. Pipes and conduits shall be installed below the concrete unless otherwise indicated. Fill required to raise the subgrade shall be placed as specified in Division 2. Unless shown otherwise, porous fill not less than 6 inches in compacted thickness shall be installed under all slabs, tank bottoms, and foundations. The fill shall be leveled and uniformly compacted to a reasonably true and even surface. The surfaces shall be clean, free from frost, ice, mud and water. Where indicated, waterproof paper, polyethylene sheeting of nominal 4-mil minimum thickness, or polyethylene coated burlap shall be laid over surfaces receiving concrete. Structures having pressure relief valves shall have a free draining granular stone layer of not less than 12" directly beneath the base slab.
- F. Hot Weather Requirements: Placing of concrete under conditions of high temperatures, low humidity or wind shall be done in accordance with the American Concrete Institute "Hot Weather Concreting" (ACI 305R-77).
- G. Cold Weather Requirements: Cold weather concreting procedures and precautions shall conform with American Concrete Institute "Cold Weather Concreting" (ACI 306 R-78).

PART 2 - PRODUCTS

2.01 Contractor shall supply concrete only from an approved ready mixed concrete supplier.

2.02 CONCRETE MIX WITHOUT FLY ASH

Structural concrete required for this project shall be proportioned by Section 3.9 of ACI 301 to produce the following 28-day compressive strengths:

- A. Selection of Proportions for Class A Concrete:
1. 4,500 psi compressive for strength at 28 days.
 2. Type II cement plus water reducing, dispersing agent and air. Type IP cement may be used in place of Type II.
 3. Maximum water/cement plus water reducing dispersing agent ratio = 0.42.
 4. Minimum cement content = 564 pounds (6.0 bags)/cubic yards concrete.
 5. Nominal maximum size coarse aggregate = No. 67 (3/4-inch maximum) or No. 57 (1-inch maximum).
 6. Air content = 6 percent plus or minus 2 percent by volume.
 7. Slump = 2 inches to 3 inches in accordance with ASTM C-143.

2.03 OPTIONAL CONCRETE MIX USING FLY ASH

- A. Selection of Proportions for Class A Concrete:
1. 4,500 psi compressive for strength at 28 days.
 2. Type II cement plus water reducing dispersing agent and air.
 3. Maximum (water)/(cement plus water reducing dispersing agent) ratio = 0.42.
 4. Minimum cement content = 517 pounds (5.5 bags)/cubic yards concrete.
 5. Maximum Fly Ash Content = 71 pounds/cubic yards
 6. Nominal maximum size coarse aggregate = No. 67 (3/4-inch maximum) or No. 57 (1-inch maximum).
 7. Air content = 6 percent plus or minus 2 percent by volume.
 8. Slump = 2 inches to 3 inches in accordance with ASTM C-143.
- B. Applicable Standards:
1. ANSI C 311-77 "Standard Methods of Sampling and Testing Fly Ash for Use as an Admixture in Portland Cement Concrete".
 2. ANSI C 618-80 "Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete".
- C. All concrete work shall use Class A concrete.
- D. All testing shall be or have been performed by an approved independent testing laboratory.
- E. Cement for exposed concrete shall have a uniform color classification.
- F. Type II cement conforming to ASTM C-150 shall be used in all structural concrete. The

alkali content shall not exceed 0.6 percent calculated as sodium oxide. Type IP Cement may be used in place of Type II cement.

G. Coarse aggregate shall conform to all requirements of ASTM C-33.

H. Manufactured sand shall not be used as fine aggregate in concrete.

2.04 FLY ASH CONCRETE

A. In the absence of a verified and acceptable history of fly ash concrete mixes, the following procedure is required to establish the quality of the concrete mix.

B. Trial batches must be made starting thirty (30) days ahead of initial concrete pour. Four (4) mixes shall be designed and produced at no cost to the Owner or the Engineer as follows:

1. Mix using Type II cement with water reducing admixture for normal temperatures (Class A).
2. Mix using Type II cement with water reducing admixture for cold weather temperatures (Class A).
3. Mix using Type II cement with water reducing admixture for hot weather temperatures (Class A).

C. Four (4) test cylinders shall be cast for each of the three (3) mixes. Two (2) cylinders shall be broken at 7 days, and two (2) cylinders shall be broken at 28 days, for each of the three (3) mixes. The trial batch design report shall include strength breaks at 7 days and 28 days, air content, etc.

D. The water-reducing, cement dispersing admixture (such as Master Builders Pozzolith 344-N, Nox-Crete Plastiflow, Plastocrete 161 by SIKA Chemical Company, or approved equal) used in fly ash concrete, shall be a normal, accelerated, or retarded hardening admixture. The admixture shall be used at optimum dosage to offset the slow strength development and setting characteristics of the fly ash. Only those brands of admixture that can provide readily available field service on short notice to provide field services, inspection, and assistance, will be acceptable.

E. Prior to the use of fly ash concrete, recent mill reports shall be submitted on a regular basis during the project. Maximum loss of ignition (LOI) shall be 6 percent.

F. Tests for air content shall be made twice a day at the jobsite prior to pouring, for all mixes containing fly ash.

2.05 ADMIXTURES

A. An air entraining admixture shall be used on all concrete and shall be the neutralized vinsol resin type such as Master Builders MB-VR, or Euclid Chemical Co. AIR-MIX or equal. The admixture shall meet the requirements of ASTM C-260. Certification

attesting to the percent of effective solids and compliance of the material with ASTM C-260 shall be furnished, if requested.

- B. A water reducing, set controlling admixture (non-lignin type) shall be used in all concrete. The admixture shall be a combination of polyhydroxylated polymers including catalysts and components to produce the required setting time based on job site conditions, specified early strength development, finishing characteristics required, and surface texture, as determined by the Engineer.
- C. Certification shall be furnished attesting that the admixture exceeds the physical requirements of ASTM C-494, Type A, water reducing and normal setting admixture, and when required, for ASTM C-494, Type D, water reducing and retarding admixture when used with local materials with which the subject concrete is composed.
- D. The admixture manufacturer, when requested, shall provide a qualified concrete technician employed by the manufacturer to assist in proportioning concrete for optimum use. He also will be available when requested to advise on proper addition of the admixture to the concrete and on adjustment of the concrete mix proportions to meet changing job conditions.
- E. The use of admixtures to retard setting of the concrete during hot weather, to accelerate setting during cold weather, and to reduce water content without impairing workability will be permitted if the following conditions are met.
- F. The admixture shall conform to ASTM C-494 except that the durability factor for concrete containing the admixture shall be at least 100 percent of control, the water content a maximum of 90 percent of control and length change shall not be greater than control, as defined in ASTM C-494.
- G. Where the Contractor finds it impractical to employ fully the recommended procedures for hot weather concreting, the Engineer may at his discretion require the use of a set retardant admixture for mass concrete greater than 2.5 feet thick and for all concrete whenever the temperature at the time concrete is cast exceeds 80 degrees F. The admixture shall be selected by the Contractor subject to the review of the Engineer. The admixture and concrete containing the admixture shall meet all the requirements of these Specifications. Preliminary tests of this concrete shall be required at the Contractor's expense.
- H. Admixtures shall be used in concrete design mixes in the same manner and proportions as in the field so that the effects of the admixtures are included in preliminary tests submitted to the Engineer for review prior to the start of construction.
- I. When more than one admixture is used, all admixtures shall be compatible. They should preferably be by the same manufacturer.
- J. Calcium chloride will not be permitted as an admixture in any concrete.

2.06 WATER

The water for concrete shall be clean, fresh, and free from injurious amounts of oil, acid, alkali, organic matter, or other deleterious substances. Mix water shall also be potable.

2.07 AGGREGATES

- A. Fine aggregates shall be natural sand having clean, hard, uncoated grains, free from injurious amounts of clay, dust, organic matter or other deleterious substances, and shall conform to ASTM C-33.
- B. Coarse aggregates shall be crushed stone having clean, hard, uncoated particles, and shall be free from injurious amounts of soft, friable, thin, elongated or laminated pieces. Shale may not be used as aggregate. Coarse aggregates shall conform to ASTM C-33 and shall not exceed the following maximum sizes:
 - 1. 3/4-inch for slabs, beams, girders, and walls.
 - 2. 1-inch for all other concrete.

2.08 TESTING AGGREGATES AND DETERMINING PROPORTIONS

- A. No concrete shall be used in the work until the materials and mix design have been accepted by the Engineer.
- B. The conformity of aggregates to the specifications hereinbefore given shall be demonstrated and determined by tests per ASTM C-33 made with representative samples of the materials to be used on the work.
- C. The actual proportions of cement, aggregates, admixtures and water necessary to produce concrete conforming to the requirements set forth shall be determined by making test cylinders using representative samples of the materials to be used in the work. A set of four (4) standard 6-inch cylinders shall be made and cured per ASTM C-31. Two (2) shall be tested at 7 days and two (2) at 28 days per ASTM C-39. The slump shall not be less than the greatest slump expected to be used in the work.
- D. Reports on the tests and a statement of the proportions proposed for the concrete mixture, shall be submitted in triplicate to the Engineer for review as soon as possible, but not less than five (5) days prior to the proposed beginning of the concrete work. If the Contractor furnishes in writing, similar, reliable detailed information from an acceptable source, and of date not more than four (4) months prior to the time when concrete will be used on this project, the above requirements for laboratory tests may be modified by the Engineer. Such data shall derive from mixtures containing constituents, including the admixtures where used, of the same types and from the same sources as will be used on this project.
- E. The Engineer shall have the right to make check tests of aggregates and concrete, using the same materials, and to order changes as may be necessary to meet the specified

requirements.

- F. The Contractor may request permission to add water at the job site, and when the addition of water is permitted by the Engineer, the quantity added shall be the responsibility of the Contractor and in no case shall the total water per bag of cement exceed that determined by the designed mix.
- G. All concrete exposed to weather, such as foundations, walls, exterior steps and retaining walls, etc. shall be air entrained.
- H. If concrete of the required characteristics is not being produced as the work progresses, the Engineer may order such changes in proportions or materials, or both, as may be necessary to secure concrete of the specified quality. The Contractor shall make such changes at his own expense and no extra compensation will be allowed because of such changes.

2.09 MIXING

All central plant and rolling stock equipment and methods shall conform to the Truck Mixer and Agitator Standards of the Truck Mixer Manufacturers' Bureau of the National Ready Mixed Concrete Assn., as well as the ACI Standards for Measuring, Mixing and Placing Concrete (ACI 614), and with Sections 7 to 14, inclusive, of the ASTM Standard Specification for Ready Mixed Concrete, Designation C94-78a, insofar as applicable.

2.10 WATERSTOPS

See Section 03251 - Expansion and Contraction Joints.

PART 3 - EXECUTION

3.01 PLACING AND COMPACTING CONCRETE

- A. At least 24 hours before the Contractor proposes to make any placement of concrete, he shall notify the Engineer of his intention and planned procedure. Unless otherwise permitted, the work shall be so executed that a section begun on any day shall be completed during daylight of the same day.
- B. Ready mixed concrete shall be transported to the site in watertight agitator or mixer trucks. The quantity of concrete to be mixed or delivered in any one batch shall not exceed the rated capacity of the mixer or agitator for the respective conditions as stated on the nameplates.
- C. Central mixed concrete shall be plant mixed a minimum of 1-1/2 minutes per batch, and then shall be truck mixed or agitated a minimum of 8 minutes. Agitation shall begin immediately after the premixed concrete is placed in the truck and shall continue without

interruption until discharge. For transit mixed concrete, the major portion of the mixing water shall be added and mixing started immediately after the truck is charged.

- D. The amount of water initially added shall be recorded on the delivery slip for the Engineer's information, no additional water shall be added, either in transit or at the site, except as directed. Mixing (at mixing speed) shall be continued for at least 10 minutes followed by agitation without interruption until discharge. Concrete shall be discharged at the site within 1-1/2 hours after water was first added to the mix, and shall be mixed at least 5 minutes after all water has been added.
- E. Concrete that has become compacted or segregated during transportation to or on the site of the work shall be satisfactorily remixed just prior to being placed in the forms.
- F. Partially hardened concrete shall not be deposited in the forms. The retempering of concrete that has partially hardened (that is, the remixing of concrete with or without additional cement, aggregate, or water) will not be permitted.
- G. The concrete shall be mixed only in the quantity required for immediate use. Concrete that has developed an initial set shall not be used. The Contractor shall have sufficient plant capacity and transporting apparatus to insure continuous delivery at the rate required.
- H. The temperature of the concrete mixture immediately before placement shall be between 50 degrees F and 90 degrees F.
- I. Concrete mixed in stationary mixers and transported by non-agitating equipment shall be placed in the forms within 45 minutes from the time ingredients are charged into the mixing drum. Concrete that is truck mixed or transported in truck mixers or truck agitators shall be delivered to the site of the work and discharge completed in the forms within the time specified in paragraph 10.7 of ASTM C-94, except that when the concrete temperature exceeds 85 degrees F, the time shall be reduced to 30 minutes. Transit mixed concrete that is completely mixed at the site of concrete placement or batched cement and aggregates transported to mixers shall be placed in the forms within 1-1/2 hours after cement has been added. Concrete shall be placed in the forms within 15 minutes after discharge from the mixer at the job site.
- J. If concrete is placed by pumping, no aluminum shall be used in any parts of the pumping system that contact or might contaminate the concrete. Aluminum chutes and conveyors shall not be used.
- K. No concrete shall be placed on frozen subgrade or in water, or until the subgrade, forms, and preliminary work have been accepted. No concrete shall be placed until all materials to be built into the concrete have been set and have been accepted by the various trades and by the Engineer. All such materials shall be thoroughly clean and free from rust, scale, oil, or any other foreign matter.

- L. Forms and excavations shall be free from water and all dirt, debris, and foreign matter when concrete is placed. Except as otherwise directed, wood forms and embedded wood called for or allowed shall be thoroughly wetted just prior to placement of concrete.
- M. Concrete placed at air temperatures below 40 degrees F shall have a minimum temperature of 50 degrees F and a maximum of 70 degrees F when placed.
- N. Chutes for conveying concrete shall be metal or metal lined and of such size, design, and slope as to ensure a continuous flow of concrete without segregation. The slope of chutes shall have approximately the same slope. The discharge end of the chute shall be provided with a baffle, or if required, a spout and the end of the chute. The spout shall be kept as close as practicable to, but in no event more than 5 feet above the surface of the fresh concrete. When the operation is intermittent, the chute shall discharge into a hopper.
- O. In thin sections of considerable height (such as walls and columns), concrete shall be placed in such manner as will prevent segregation and accumulations of hardened concrete on the forms or reinforcement above the mass of concrete being placed. To achieve this end, suitable hoppers spouts with restricted outlets, etc. shall be used as required or permitted unless the forms are provided with suitable openings.
- P. Chutes, hoppers, spouts, etc. shall be thoroughly cleaned before and after each run and the water and debris shall not be discharged inside the form.
- Q. For any one placement, concrete shall be deposited continuously in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause the formation of seams and planes of weakness within the section, and so as to maintain until the completion of the unit, an approximately horizontal plastic surface.
- R. No wooden spreaders shall be left in the concrete.
- S. During and immediately after being deposited, concrete shall be thoroughly compacted by means of suitable tools and methods, such as internal type mechanical vibrators operating at not less than 5,000 rpm. or other tool spading to produce the required density and quality of finish. Vibration shall be done only by experienced operators and shall be carried in such manner and only long enough to produce homogeneity and optimum consolidation without permitting segregation of the solid constituents, "pumping" of air, or other objectionable results.
- T. The concrete shall be thoroughly rodded and tamped about embedded materials so as to secure proper adhesion and prevent leakage. Care shall be taken to prevent the displacement of such materials during concreting.
- U. The distance between construction joints shall not exceed 25 feet for all concrete construction and not less than 48 hours shall elapse between casting of adjoining units unless these requirements are waived by the Engineer. Provision shall be made for

jointing successive units as indicated or required. Where joints are not shown on the Drawings, they are required to be made at a spacing of approximately 25 feet. Additional construction joints required to satisfy the 25 foot spacing requirement shall be located by the Contractor subject to the review of the Engineer. The Contractor shall submit for review Drawings separate from the steel reinforcing Drawings, showing the location of all proposed construction joints. All construction joints shall be prepared for bonding as specified in paragraph 6.1.4.3 of ACI Standard 301 and Section 3.02 Bonding Concrete at Construction Joints. Joints in walls and columns shall be maintained level.

- V. Formwork for beam soffits and slabs and other parts that support the weight of concrete shall remain in place until the concrete has reached its specified 28-day strength, unless otherwise specified or permitted.

3.02 BONDING CONCRETE AT CONSTRUCTION JOINTS

- A. In order to secure full bond at construction joints, the surface of the concrete previously placed (including vertical, inclined, and substantially horizontal areas) shall be thoroughly cleaned of foreign materials and laitance, if any, and then roughened.
- B. The previously placed concrete at the joint shall be free of standing water.
- C. Waterstops shall be used on all construction joints below water level and as otherwise indicated on the drawings.

3.03 CURING AND PROTECTION

- A. All concrete, particularly slabs and including finished surfaces, shall be treated immediately after concreting or cement finishing is completed, to provide continuous moist curing for at least seven days, regardless of the adjacent air temperature. Walls and vertical surfaces may be covered with continuously saturated burlap, or kept moist by other acceptable means. Horizontal surfaces, slabs, etc., shall be ponded to a depth of 1/2-inch wherever practicable, or kept continuously wet by the use of lawn sprinklers, a complete covering of continuously saturated burlap, or by other acceptable means.
- B. For at least seven days after having been placed, all concrete shall be so protected that the temperature at the surface will not fall below 45 degrees F. The methods of protecting the concrete shall be as specified in that section of the General Specifications titled "Precautions During Adverse Weather" and shall be subject to the review of the Engineer.
- C. No manure, salt, or other chemicals shall be used for protection.
- D. The above mentioned 7-day periods may be reduced to 3 days in each case if high-early-strength cement is allowed to be used in the concrete.
- E. Wherever practicable, finished slabs shall be protected from the direct rays of the sun to prevent checking and crazing.

3.04 TRIMMING AND REPAIRS

- A. The Contractor shall use suitable forms, mixture of concrete, and workmanship so that concrete surfaces, when exposed, will not require patching. Concrete which, in the opinion of the Engineer has excessive honeycomb, aggregate pockets, or depressions will be rejected and the Contractor shall, at his own expense remove the entire section containing such defects and replace it with acceptable concrete.
- B. As soon as the forms have been stripped and the concrete surfaces exposed, fins and other projections shall be removed, recesses left by the removal of form ties shall be filled and surface defects which do not impair structural strength shall be repaired.
- C. Defective concrete shall be cut perpendicular to the surface until sound concrete is reached, but not less than 1-inch deep. The remaining concrete shall be thoroughly roughened and cleaned. Concrete around the cavity or the form tie recess shall be thoroughly wetted and promptly painted with a 1/16-inch brush coat of neat cement mixed to the consistency of thick paint. The hole shall then be filled with mortar.
- D. Mortar shall be 1:1-1/2 cement and sand mix with sufficient white cement, or fine limestone screening in lieu of sand, to produce a surface matching the adjoining work. Cement and sand shall be from the same sources as in the parent concrete.
- E. Mortar in patches shall be applied so that after partial set it can be compressed and rubbed to produce a finish flush and uniform in texture with the adjoining work. All patches shall be warm-moist cured as above specified.
- F. The use of mortar patching as above specified shall be confined to the repair of small defects in relatively green concrete. If substantial repairs are required, the defective portions shall be cut out to sound concrete and the defective concrete replaced by means of a cement gun, or the structure shall be taken down and rebuilt, all as the Engineer may decide or direct.

3.05 FINISHES

- A. Exposed to View Concrete Surfaces:
 - 1. All concrete exposed to view in the completed structure shall be produced using materials and workmanship to such quality that only nominal finishing will be required. The provisions of paragraphs 13.3, 13.4, and 13.6 of ACI shall apply to all exposed to view concrete surfaces (limited to 1 foot below grade and 1 foot below the minimum liquid level for structures that will contain liquids).
 - 2. Forms for exposed concrete surfaces shall be exterior grade, high density overlay plywood, steel, or wood forms with smooth tempered hard board form liners.
 - 3. Forms shall be coated with Nox-Crete Form Coating Release Agent, Debond Form Coating by L & M Construction Chemicals, Inc. or an approved equal, before initial pour and between subsequent pours, in accordance with the manufacturer's

- printed instructions. Form boards shall not be wet with water prior to placing concrete.
4. Recessed joints in concrete shall be formed using lacquer coated wooden battens or forms, milled to indicated profiles. Battens and corner strips shall be carefully inspected before concrete is placed and damaged pieces replaced.
 5. Chamfer strips shall be 1-inch radius with leg, polyvinyl chloride strips by Gateway Building Products, Saf-T-Grip Specialties Cor., Vinylex Corp., or equal.
 6. Particular attention is directed to the requirements of paragraphs 10.2.2 and 13.3 of ACI 301. Form panels shall be provided in the maximum form joints. Wherever practicable, form joints shall occur at recessed joints. All form joints in exterior exposed to view surfaces shall be carefully caulked with an approved nonstaining caulking compound. Joints shall not be taped. Form oil or other material which will impart a stain to the concrete shall not be allowed to contact concrete surfaces.
 7. Care shall be taken to prevent chipping of corners or other damage to concrete when forms are removed. Exposed corners and other surfaces which may be damaged by ensuing operations shall be protected from damage by boxing, corner boards or other approved means until construction is completed.
 8. Form ties shall remain in the walls and shall be equipped with a waterseal to prevent passage of water through the walls. Particular care shall be taken to bend tie wire ends away from exposed faces of beams, slabs and columns. In no case shall ends to tie wires project toward or touch formwork. Minimum set back of form ties shall be 1 inch from faces of wall. The hole left by removal of tie ends shall be sealed and grouted as per ACI Par. 9.3 and in accordance with procedure described hereinafter in Par. 3.04.E. Form ties will be permitted to fall within as cast areas of architecturally treated wall surfaces (ACI Chapter 13); this does not apply to walls receiving textured decorative waterproof masonry coating.
 9. All formed exposed to view concrete shall be prepared as paragraph 3.04 B, then receive a grout-cleaned finish. The grout-cleaned finish shall use a mix of one part white Portland cement and 1½ parts of fine sand mixed with sufficient water to form a grout having the consistency of thick paint. Apply to damp surface and rub down in such a manner as to obtain a smooth, filled surface uniform in color and free from defects and blemishes. Exterior vertical surfaces shall be finished to one foot below grade. Interior exposed to view vertical surfaces of dry pits shall be finished full height, interior vertical surfaces of liquid containers shall be finished to one foot below the minimum liquid level that will occur during normal operations.
 10. Slope all slabs to prevent water pocketing.
- B. All vertical surfaces below minimum liquid level in liquid containing structures shall have a smooth form finish.
 - C. All smooth form concrete vertical surfaces shall be true plane within 1/4-inch in 10 feet as determined by a 10 foot straight edge place anywhere on the surface in any direction. Abrupt irregularities shall not exceed 1/8-inch.
 - D. Basin, flume, conduit and tank floors shall have a "troweled" finish unless shown

otherwise on Drawings.

- E. Weirs and overflow surfaces shall be given a troweled finish.
- F. Exterior platforms, steps and landings shall be given a broom finish. Broom finish shall be applied to surfaces which have been steel troweled to an even smooth finish. The troweled surface shall then be broomed with a fiber bristle brush in the direction transverse to that of the main traffic.
- G. Walking surfaces of slabs shall have a troweled finish unless shown otherwise on Drawings.
- H. Patching of holes due to removal of tie ends and other repairable defective areas shall be as follows: Entire contact area of hole shall be coated with two part moisture insensitive epoxy bonding compound in accordance with manufacturer's specifications, and prior to placing of freshly mixed patching mortar. Patching mortar shall be mixed and placed in general accordance with ACI Par. 9.2.2, 9.2.3, and 13.6.
- I. Nox-Crete Harbeton, Chem Hard by L & M Construction Chemicals hardener treatment, or an approved equal shall be applied to all exposed concrete floors in occupied spaces. The floors shall be thoroughly cured, cleaned, and perfectly dry with all work above them completed. The hardener shall be applied evenly and freely and in conformance with manufacturer's instructions, using not less than three (3) coats, allowing 24 hours between coats. One gallon of hardener shall cover not more than 100 square feet. After the final coat is completed and dry, surplus hardener shall be removed from the surface of the concrete by scrubbing and mopping with water.

3.06 CONCRETE WALKS AND CURBS:

- A. Subgrade shall be true and well compacted at the required grades. Spongy and otherwise unsuitable material shall have been removed and replaced with properly compacted, approved material. Concrete walks shall be placed upon 8-inch DGA unless noted otherwise on the Drawings.
- B. Concrete walks shall be not less than 4 inches in thickness. Walks shall have contraction joints every 5 linear feet in each direction, formed in the fresh concrete by cutting a groove in the top surface of the slab to a depth of at least one-fourth the slab thickness with a jointing tool. Transverse expansion joints shall be installed at driveways, and opposite expansion joints in adjacent curbs. Where curbs are not adjacent, transverse expansion joints shall be installed at intervals of approximately 25 feet. Sidewalks shall receive a broomed finish. Scoring shall be in a transverse direction. Edges of the sidewalks and joints shall be edged with a tool having a radius not greater than 1/6-inch. Sidewalks adjacent to curbs shall have a slope of 1/4-inch per foot toward the curb. Sidewalks not adjacent to curbs shall have a transverse slope of 1/4-inch per foot or shall be crowned as directed by the Engineer. The surface of the concrete shall show no variation in cross section in excess of 1/4-inch in 5 feet. Concrete walks shall be

reinforced with 6 x 6 - W1.4 x W1.4 welded wire fabric unless noted otherwise on the Drawings.

- C. Concrete curbs shall be constructed to the section indicated on the Drawings, and all horizontal and vertical curves shall be incorporated as indicated or required. Forms shall be steel or as approved by the Engineer. At the option of the Contractor, the curbs may be precast or cast-in-place. Cast-in-place curbs shall be divided into Sections 8 to 10 feet in length using steel divider plates. The divider plates shall extend through the concrete and shall be removed. Precast curbs shall be finished smooth. Dividers shall be installed where the curb crosses pipe trenches or other insecure area. Transverse expansion joints shall be installed at all curb returns and at intervals of approximately 40 feet.

3.07 WATERTIGHTNESS

- A. The structures which are intended to contain liquids and/or will be subjected to exterior hydrostatic pressures shall be so constructed that when completed and tested, there shall be no loss of water and no wet spots shall show.
- B. As soon as practicable after the completion of the structures, the Contractor shall fill such structures with water and if leakages develop or wet spots show, the Contractor shall empty such structures and correct the leakage in an approved manner. Any cracks which appear in the concrete shall be dug out and suitably repaired. Temporary bulkheads over pipe openings in walls shall be provided as required for the testing.
- C. After repairs, if any are required, the structures shall be tested again and further repaired if necessary until satisfactory results are obtained. All work in connection with these tests and repairs shall be at the expense of the Contractor.
- D. Waterstops shall be placed in all locations as indicated on the Drawings and as may be required to assure the watertightness of all containers of liquids. Special shop fabricated ells, tees and crosses shall be provided at junctions. Waterstops shall be extended at least 6 inches beyond end of placement in order to provide splice length for subsequent placement. In slabs and tank bottoms, waterstops shall be turned up to be made continuous with waterstops at bottom of walls or in walls. All joints between adjacent, continuing, and intersecting sections of waterstop including butt joints, tee joints, and other angled joints shall be heat fused to form a watertight seal. Waterstops shall not be lapped. Waterstops shall be secured in place to maintain proper position during placement of concrete. Care shall be taken to avoid folding while concrete is being placed and to prevent voids in the concrete surrounding the waterstop. All materials shall be installed in accordance with the manufacturer's recommendations.
- E. Joints between pipe (except cast iron wall pipe) and cast-in-place concrete walls shall be sealed as required by the Drawings.
- F. The top surface of all concrete decks (except slabs on grade) shall be coated with Sikagard-70 water-repellant penetrating sealer as manufactured by the Sika Corporation,

Nox-Crete Stifel, or another approved equal. The manufacturer's recommendations shall be followed in all areas of application.

3.08 GROUTING BASE PLATES, BEARING PLATES AND MACHINE BASES

- A. Column base plates, bearing plates for beams and similar structural members, machinery and equipment bases shall, after being plumbed and properly positioned, be provided with full bearing on epoxy nonshrink grout. Concrete surfaces shall be rough, clean, free of oil, grease and laitance and shall be moistened thoroughly immediately before grout is placed. Metal surfaces shall be clean and free of oil, grease and rust. Mixing and placing shall be in conformance with the material manufacturer's printed instructions.
- B. Grout fill that is formed in place by using rotating equipment as a screed, such as for clarifiers and similar types of equipment, shall be mixed in proportions and consistencies as required by the manufacturer or supplier of the equipment.

3.09 EQUIPMENT PADS

Unless otherwise shown or directed, all equipment and items such as lockers, motor control centers, etc., shall be installed on concrete bases. The bases shall be constructed to the dimensions shown on the Drawings or as required to meet plan elevations. Where no specific plan elevations are required, the bases shall be 6 inches thick and shall extend 3 inches outside the equipment base. In general, the concrete bases shall be placed up to 1-inch below the base. The equipment shall then be properly shimmed to grade and the 1-inch void filled with nonshrink epoxy grout.

END OF SECTION 03310

SECTION 03350 – CONCRETE FINISHES

PART 1 - GENERAL

1.01 SUMMARY

- A. Provide processed concrete surface finishes:
 - 1. Floor Slabs – Steel Troweled
 - 2. Exposed Surfaces – Rubbed

1.02 SUBMITTALS

- A. Submit for approval samples, product data, 4' by 4' mock-ups.

1.03 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Deliver, handle, and store materials in accordance with manufacturer's instructions.

1.04 RELATED WORK

- A. Section 03310 – Structural Concrete.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Concrete design mixes based on application and surface integrity:

PART 3 - INSTALLATION

- A. Floor Slabs: Steel trowel to hard finish without adding cement or other additives (Conform to ACI Code).
- B. Exposed Surfaces: All exposed to view concrete, exterior and interior, shall be prepared as described in Section 03310 – Structural Concrete, then receive a grout-cleaned finish. The grout-cleaned finish shall use a mix of one part white Portland cement and 1½ parts of fine sand mixed with sufficient water to form a grout having the consistency of thick paint. Apply to damp surface and rub down in such a manner as to obtain a smooth, filled surface uniform in color and free from defects and blemishes. Exterior vertical surfaces shall be finished to one foot below grade. Interior exposed to view vertical surfaces of dry pits shall be

finished full height, interior vertical surfaces of liquid containers shall be finished to one foot below the minimum liquid level that will occur during normal operations.

END OF SECTION 03350

SECTION 03600 - PRECISION GROUTING

PART 1 - GENERAL

1.01 WORK INCLUDED

Provide all labor, material, equipment and services required for grouting of equipment, machinery, structural steel, handrails, anchor bolts and other items or work for which grouting is specified or required. All unnecessary holes, openings and cracks in existing concrete shall be filled and patched.

1.02 DESCRIPTION OF WORK

- A. High strength, precision support of machine bases and soleplates, setting anchor bolts, including equipment subject to thermal movement and repetitive dynamic loading.
- B. Work includes providing a non-shrink, ready-to-use, fluid precision epoxy grout material; proportioned, pre-mixed and packaged at the factory; delivered to the job site to place with only the addition of water; forming, placing and curing as specified in this section.

1.03 RELATED WORK

- A. Section 03310 - Structural Concrete.
- B. Review all divisions and sections for equipment, machinery and other items to be grouted.

1.04 QUALITY ASSURANCE

Comply with the following codes, standards, test and recommended practices for foundation concrete as apply to precision grouting:

- A. ACI 347 "Recommended Practice for Concrete Formwork".
- B. ASTM C 309 "Standard Specifications for Liquid Membrane Forming Compounds for Curing Concrete".
- C. Manufacturer's Information on Use of Grout: Attached to each bag of grout.

1.05 SUBMITTALS

Manufacturer's data of grout to be used shall be submitted to Engineer for review (see Section 01300).

PART 2 - PRODUCTS

2.01 GROUT

- A. Precision-support grout shall consist of an epoxy three component system, special graded and processed (non-ferrous metallic internal reinforcing aggregate), carefully graded natural fine aggregate and additional technical components.
- B. Grouts which depend upon aluminum powders, chemicals, or other agents which produce gas for expansion are not acceptable.
- C. Precision-support grout shall also meet the following requirements:
 - 1. Free of gas producing agents.
 - 2. Free of oxidizing catalysts.
 - 3. Free of inorganic accelerators, including chlorides.

2.02 WATER

Water shall be suitable for drinking.

PART 3 - EXECUTION

3.01 PREPARATION FOR GROUTING

- A. Remove laitance down to sound concrete.
- B. Surface to receive grout shall be rough and reasonably level.
- C. Surface shall be properly cured. DO NOT USE CURING COMPOUNDS.
- D. Clean surface of oil, grease, dirt, and loose particles.
- E. Clean bolt holes, bolts and underside of equipment base.
- F. Install per manufacturer's recommendations.

3.02 FORMWORK

- A. Formwork shall be compatible with proposed method of placing grout. Design for rapid, continuous and complete filling of space to be grouted.
- B. Build strong, tight forms braced so they will not leak or buckle under weight of fluid grout.

3.03 FINISHING AND CURING

- A. Follow manufacturer's printed instructions for the brand and type of grout being used.
- B. The grout shall meet the following strengths:

	<u>Plastic Mix</u>	<u>Flowable Mix</u>
1 day	4,000 psi	2,000 psi
3 days	6,000 psi	3,000 psi
7 days	8,000 psi	5,000 psi
28 days	10,000 psi	7,000 psi

END OF SECTION 03600

Division 5 – Metals

SECTION 05500 - MISCELLANEOUS METALS, FASTENERS, SPECIAL FINISHES

PART 1 - GENERAL

1.01 WORK INCLUDED

Provide all labor, materials, equipment and service necessary for fabrication and erection of structural steel and aluminum and for fabrication and installation of miscellaneous non-ferrous metals as shown on the Drawings and not specifically included under other sections of these Specifications.

- A. Erection.
- B. Shop and Erection Drawings.
- C. Shop Painting.
- D. Galvanizing.
- E. Aluminum Work Protection.
- F. Cleaning Aluminum Work.
- G. Miscellaneous Items.
- H. Loose Lintels.
- I. Sleeves and Inserts.
- J. Aluminum Pipe Railing.
- K. Aluminum Stairs.
- L. Ladders.
- M. Ship Ladders.
- N. Plate Covers and Frames.
- O. Guard Chains.
- P. Lifting Hooks.
- Q. Sand Trap Grating and Frame.

- R. Cast Iron Wheel Guard.
- S. Cast Aluminum Nosings.
- T. Floor Hatches and Frames.
- U. Access Doors.

1.02 RELATED WORK

- A. Section 04200 - Concrete Masonry Unit.
- B. Section 05530 - Aluminum Grating.

1.03 REFERENCES

All work under this Section shall be governed by:

- A. Specifications for the design, fabrication and erection of structural steel for buildings - American Institute of Steel Construction, current edition.
- B. Aluminum Construction Manual, Section 1, Specifications for Aluminum Structures - the Aluminum Association.
- C. All welding shall conform to the latest code of the American Welding Society.
- D. ASTM A-276.
- E. ASTM A-325.
- F. ASTM F-593, 294.
- G. Federal Specification FF-S-325.
- H. ASTM A-48.
- I. Federal Specification TT-V-51F.
- J. ANSI B94.12.
- K. ASTM A-12, A-153, A-384, A-563 and A-780.
- L. SSPC SP-1, SP-2, SP3, SP-7.

1.04 SUBMITTALS

- A. As required by the Specifications, the Contractor shall submit for review completely detailed and certified shop and erection drawings of the miscellaneous metal work. All coatings or other protection against corrosion to be applied at the shop or in the field shall be indicated on these drawings. The shop drawings for aluminum work shall show the alloys and tempers to be used, and the finish, if any to be applied.
- B. Shop drawings, giving complete information necessary for fabrication, layout and installation of metal work shall be submitted to the Engineer for review prior to fabrication.
- C. Preparation of shop drawings for fabricated metal items shall be coordinated by the Contractor with the manufacturers of various equipment in order to comply with details, locations, openings, and arrangements required by the manufacturers.
- D. Field measurements shall be made to verify all dimensions in the field that may affect installation of work before shop drawings are made and/or fabrication is performed.

1.05 QUALITY ASSURANCE

- A. The design, detail and workmanship of steel plates and structural steel shall conform to the AISC Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings.
- B. Where welding is permitted or required, it shall conform to the current requirements of the American Welding Society for the type of work in question.
- C. Aluminum work shall be fabricated in a shop where the quality of work is in accordance with the highest standards for work of this type. All work shall be executed by mechanics skilled in the fabrication of aluminum, and shall be true to detail with sharp, clean profiles, fitted with proper joints and intersections and with finishes as specified.
- D. All miscellaneous metal work shall be formed to shape and size with sharp lines and angles. Shearing and punching shall leave clean true lines and surfaces.

1.06 RESPONSIBILITY FOR DIMENSIONS

The general design and dimensions of the miscellaneous metal work are indicated on the Drawings, but the Contractor shall be responsible for the correctness of the details and dimensions of the finished articles. He shall verify conditions at the job before fabrication and coordinate the work with that of all other trades to prevent interference.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Steel plates and structural steel shapes shall conform to ASTM Standard Specification for Structural Steel, Designation A36.
- B. Sheet steel shall be cold rolled or hot rolled carbon sheet steel conforming to ASTM Standard Specification for Steel, Carbon, Cold Rolled Sheet, Commercial Quality, Designation A36 or ASTM Standard Specification for Steel, Carbon (0.15 maximum, percent), Hot Rolled Sheet and Strip, Commercial Quality, Designation A569, as appropriate.
- C. Steel pipe shall conform to ASTM Standard Specifications for Pipe, Steel, Black and Hot Dipped, Zinc Coated, Welded and Seamless, Designation A53.
- D. Stainless steel shall be Type 304 unless otherwise indicated or specified.
- E. Aluminum work shall be fabricated of plates, rolled or extruded shapes, sheets or casting conforming (unless otherwise permitted or indicated) to the following alloy and temper designations of the Aluminum Association:
 - 1. Structural rolled or extruded shapes 6061-T6.
 - 2. Extruded shapes 6063-T5.
 - 3. Plates 6061-T6.
 - 4. Gratings (bearing bars) 6061-T6 (crimp bars) 6063-T6.
 - 5. Castings 214.
 - 6. Sheets 3003-F.
 - 7. Bolts and nuts 2024-T4.
 - 8. Pipe Railing 6063-T6.
- F. The Contractor shall furnish the Engineer with mill certificates and a signed statement from the fabricator that all aluminum work furnished is of the proper alloys, as specified above.

2.02 STEEL

- A. Structural steel shall conform to the requirements of ASTM A-36. Structural tubing, where used, shall conform to the requirements of ASTM A-500, Grade B, and the ends of the tubing shall be properly sealed to protect the internal surfaces. Steel anchor bolts shall be ASTM A-36 hot rolled threaded rod or bar stock, except where stainless steel is indicated on the Drawings.
- B. Structural steel members as required shall conform to ASTM Standard shapes.

- C. Base and bearing plates shall be provided where necessary to provide maximum bearing value of not more than 200 psi on solid concrete masonry units not more than 750 psi on concrete and shall be grouted in place.
- D. Steel lintels shall be provided for all square head openings in masonry where shown and where other lintels are not indicated on the Drawings. Lengths of bearing at each end of lintels shall be not less than 1 inch per foot of span, but in no case less than 8 inches shall be increased or the lintels shall be fitted with bearing plates as required to provide unit pressures in pounds per square inch of not more than 200 on solid concrete masonry units and 625 on concrete. All new steel lintels shall be hot-dipped galvanized. Finish coats are specified in Division 9 - Finishes.

2.03 SHOP PAINTING

Painting of miscellaneous ferrous metal work is specified under Division 9.

2.04 GALVANIZING

Items of miscellaneous iron work and steel work indicated on the Drawings or specified to be galvanized shall be zinc coated by the hot dip process in conformity with ASTM Standard Specification for Zinc (hot galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip, Designation A123-78; or ASTM Standard Specifications for Zinc Coating (hot-dip) on Iron and Steel Hardware, Designation A153-78, as appropriate. Galvanizing is specified under Article 3.04, "Hot-Dip Galvanizing".

2.05 ALUMINUM

All structural and miscellaneous aluminum shall be Alloy 6061 (Alloy 6063 for extrusions), Temper T6, unless otherwise noted, indicated or accepted by the Engineer. Where welding is necessary in fabrication, it shall be done in conformance with Section 7 "Welded Construction" of Specification for Aluminum Structures, referenced hereinbefore.

2.06 ALUMINUM WORK PROTECTION

- A. Aluminum surfaces which after erection would otherwise be in contact with concrete or brick masonry or with mortar, shall be protected from contact therewith by a coat of bitumastic super service black manufactured by the Koppers Company, Inc., Pittsburgh, PA; Tarmastic 100 manufactured by Porter Coating Division, Porter Paint Company, Louisville, KY; 450 Heavy Tnemecol manufactured by Tnemec Company, North Kansas City, MO; or equal. Areas where the paint has been damaged by abrasion or other cause shall be cleaned and repainted as directed so that the aluminum will have a complete protective paint film when brought into contact with the material against which it is being protected. Before application of coating, the surface shall be cleaned of all dirt, heavy deposits of grease or oil, and other foreign substances and shall be immersed in or

swabbed with an acceptable solvent. Next the surfaces shall be rinsed with clear water and thoroughly dried.

- B. The Contractor's attention is directed to the requirements of the Specifications in regard to protection against electrolysis where aluminum is to be used in conjunction with dissimilar metals.
- C. Where a shop coating of methacrylate lacquer has been specified on aluminum work to protect the surface from stain, the protective coating of lacquer worn off during handling or erection shall be replaced in the field by a new coating of lacquer of the same type.
- D. During construction, care shall be taken to prevent damage to the aluminum work from splashing or the accumulation of paint, concrete, mortar, or other similar materials.

2.07 STAINLESS STEEL

Stainless steel shapes shall be ANSI Type 304 or 316 in accordance with ASTM A-276. Miscellaneous bar stock products such as pipe straps shall be 400 Series stainless steel. Anchor bolts, nuts and washers shall be ANSI Series 300 stainless steel.

2.08 FASTENERS

- A. Bolts, Nuts and Washers:
 - 1. Structural bolts shall be high strength ASTM A-325, Type 1, galvanized and galvanized ASTM A-325 hardened flat washers and galvanized ASTM A-325 hex nuts. Galvanized bolts, nuts and washers shall be centrifugally spun after galvanizing. Nuts shall have threads tapped oversize after galvanizing. All stainless steel bolts, nuts and washers shall be ANSI Type 300 Series stainless steel in accordance with ASTM F-593, with ASTM F-594 nuts. All bolts shall have hexagonal heads.
 - 2. Anchors and bolts including nuts and washers shall be provided where necessary for securing the work in place. Sizes, types and spacings of anchors and bolts not indicated or specified otherwise shall be as necessary for their purposes. Anchor bolts and anchors for the erection of structural steel shall be galvanized. Anchored bolts, nuts, and washers for all other uses including, but not limited to, underwater use and for the installation of equipment, piping, pumps and motors shall be stainless steel Type 304.
- B. Expansion Anchors (In Concrete):
 - 1. Expansion anchors shall be of two (2) types:
 - a. Stainless steel wedge type.
 - b. Self drilling plated type with stainless steel bolt and stainless steel washer. Type of expansion anchor desired shall be noted on Drawings
 - 2. Stainless steel wedge type anchors shall be ITW Ramset/Red Head, or equal of

Type 303 stainless steel. Anchors shall meet or exceed latest Government GSA Federal Specifications FF-S-325, Group II, Type 4, Class 1. Anchor shall be used with 300 series stainless steel bolt and washer.

3. Self drilling plated anchors shall be ITW Ramset/Red Head, or equal. Anchors shall meet or exceed latest Government GSA Federal Specification FF-S-325, Group III, Type 1. Self-drilling anchors shall be electro-deposited zinc plated and chromate dipped, to meet or exceed the requirements of the latest Federal Specification QQ-Z-325, Type II, Class 3. Cutting teeth shall have minimum hardness of 82 Rockwell A scale.
4. Stainless steel expansion anchors shall be installed in accordance with manufacturer's recommendations.
5. Self-drilling expansion anchors shall be installed in accordance with manufacturer's recommendations. To insure full development strength, all self-drilling expansion anchors shall be expanded over the plug in the final set, by using a bolt screwed into the female threads and impacted by hand with a suitable hammer. The final set shall not be accomplished by using the drilling tool.
6. After installation, pull-out tests by the anchor manufacturer's representative may be requested by the Engineer. If so, the Engineer's inspector will specify the number and location of the tests.

2.09 ALUMINUM LADDERS

- A. Aluminum ladders shall be furnished and installed at the locations shown on the Contract Drawings.
- B. The ladders shall be constructed with side rails of 2-1/2 inches by 1/2-inch flat bar and brackets of 3 inches by 1/2-inch flat bar with rungs of 1 inch diameter bars, shouldered, driven through the side rails and peened. Maximum bracket support spacing shall be 5 feet - 0 inches on centers. The brackets shall be welded to the side rails. Rung spacing shall be 12 inches on centers. In general, the ladders shall extend to within 6 inches of the access opening. Ladders shall be constructed of 6061-T6 aluminum. Wedge type stainless steel expansion anchors shall be used to attach aluminum ladders to walls as indicated on Contract Drawings.

2.10 MISCELLANEOUS ITEMS

Items of miscellaneous metal work not particularly specified hereinafter shall be of the shape, size, material and details indicated on the Drawings or suitable for the purpose intended.

2.11 LOOSE LINTELS

The Contractor shall furnish all loose lintels as indicated on the Drawings or required by the work. The loose lintels shall be fabricated from structural steel shapes and plates. All loose lintels shall be hot-dip galvanized after fabrication.

2.12 SLEEVES AND INSERTS

The Contractor's attention is directed to the requirements of the Specifications regarding sleeves and inserts.

2.13 ALUMINUM PIPE RAILING

- A. The aluminum pipe railing shall be the product of company normally engaged in the manufacture of pipe railing. Railing shall be shop assembled in lengths not to exceed 24 feet for field erection.
- B. Handrails and stair rails shall be designed to withstand a 200-pound concentrated load applied in any direction at any point on the top rail. Handrails and stair rails shall also be designed to withstand a load of 50 lbs/ft. applied horizontally to the top rail. The 200-pound load will not be applied simultaneously with the 50 lbs/ft. load. In addition, the handrails shall be designed to withstand a load of 100 lbs/ft. applied vertically downward to the top rail and simultaneously with the 50 lbs/ft. horizontal load. The 100 lbs/ft. vertical load does not apply to stair rails.
- C. The manufacturer shall submit calculations to the Engineer for approval. Testing of base castings or base extrusions by an independent lab or manufacturer's lab (if manufacturer's lab meets the requirements of the Aluminum Association) will be an acceptable substitute for calculations. Calculations will be required for approval of all other design aspects.
- D. Post spacing shall be a maximum of 6 feet 0 inches. Posts and railings shall be a minimum of 1-1/2 inches Schedule 40 aluminum pipe alloy 6063-T6, ASTM-B-429 or ASTM-B-221. The handrail manufacturer shall show that their posts are of adequate strength to meet the loading requirements. If the manufacturer's posts are not of adequate strength, the manufacturer may reduce the post spacing or add reinforcing dowels or may do both in order to meet loading requirements.
- E. The handrail shall be made of pipes joined together with component fittings. Samples of all components, bases, toe plate and pipe must be submitted for approval. Components that are glued or pop riveted at the joints will not be acceptable. All components must be mechanically fastened with stainless steel hardware. Handrail and components shall be Thompson Fabricating Company or approved equal.
- F. Posts shall not interrupt the continuation of the top rail at any point along the railing, including corners and end terminations. The top surface of the top railing shall be smooth and shall not be interrupted by project fittings.
- G. The midrail at a corner return shall be able to withstand a 200-pound load without loosening.

- H. Expansion bolts shall be spaced 10 diameters apart and 5-diameter edge distance for no reduction in pullout strength. A safety factor of four shall be used on expansion bolt pullout values published by the manufacturer. Expansion bolts shall be stainless steel type 303 wedge bolts.
- I. Toe plate shall conform to OSHA standards. Toe plate shall be a minimum of 4 inches high and shall be an extrusion that attaches to the posts with clamps which will allow for expansion and contraction between posts. Toe plates shall be set 1/4-inch above the walking surface. Toe plates shall be provided on handrails as required by OSHA and/or as shown on Drawings. Toe plates shall be shipped loose in stock lengths with pre-manufactured corners for field installation.
- J. Openings in the railing shall be guarded by a self-closing gate. Safety chains shall not be used unless specifically shown on the Drawings.
- K. Finish shall be Aluminum Association M10-C22-A41 (215-R1). The pipe shall be plastic wrapped. The plastic wrap is to be removed after erection.
- L. Aluminum surfaces in contact with concrete, grout or dissimilar metals will be protected with a coat of bituminous paint, mylar isolators or other approved material.

2.14 ALUMINUM STAIRS

- A. The aluminum stairs shall have structural aluminum channel stringers and supports, aluminum tread plate treads and platforms and sheet aluminum risers as indicated on the Drawings and in the details.
- B. The treads shall be aluminum grating (see Section 05530). The treads shall be supported by and attached to 1-1/4 inch by 3/16 inch aluminum carrier angles bolted to the stringers. The treads shall be the widths indicated.
- C. All platforms shall be fabricated of 1/4-inches thick aluminum tread plate and shall be supported on the edges by structural aluminum angles and at the mid-spans by structural aluminum tees.
- D. The aluminum tread plate for treads and platforms shall have an acceptable nonskid pattern surface.
- E. The Contractor shall provide all structural aluminum angle hangers, struts, rod hangers, closure plates and brackets indicated or necessary to complete the stairs as indicated.

2.15 SHIP LADDERS

- A. Ship ladders as located on the Drawings shall have structural aluminum channel stringers, aluminum pipe handrails and aluminum riveted grating treads. The treads shall be Type K manufactured by Borden Metal Products Company, Elizabeth, NJ; Reticuline Type M

manufactured by IKG Industries, Long Island City, NY; Type KM manufactured by Kerrigan Iron Works, Inc., Nashville, TN; or equal. The bearing bars of the treads shall be 3/16 inches thick by 1-1/4 inches deep and shall be fabricated of 6061-T6 aluminum alloy. Crimp bars shall be fabricated of 6063-T5 aluminum alloy riveted on 7-inch centers, and raised slightly above the bearing bars and serrated. The treads shall have integral slotted and punched end plates for attaching to the stringers. All treads shall be provided with 1-1/4-inch abrasive or extruded aluminum corrugated nosing.

- B. The handrails shall be fabricated of 1-1/2 inch IPS, Schedule 40 aluminum pipe with flush welded joints ground smooth. The rails shall be secured to the stringers as indicated. The handrails shall be given an Aluminum Association Standard Anodic finish, Designation C22A31 followed by a shop coat of methacrylate lacquer.
- C. The Contractor shall provide all structural aluminum clip angles, brackets and fasteners required to complete the ship ladders as indicated. All fasteners shall be stainless steel.

2.16 PLATE COVERS AND FRAMES

- A. The plate covers and frames shall be of the sizes indicated on the Drawings. The frames shall be aluminum angles of the sizes indicated with welded strap anchors for securing the frames in the concrete. The frames shall have mitered corners with welded joints ground smooth where exposed.
- B. The covers shall be 1/4-inch thick aluminum tread plate having an acceptable nonskid surface and reinforced with aluminum bars welded to the underside of the cover in accordance with the details. Plate covers shall be capable of supporting a uniform superimposed load of 100 psf for the span with a deflection of less than 1/4-inch based on an allowable fiber stress of 16,000 psi. The covers shall be made to fit neatly and accurately in the frames.
- C. Hinged covers shall be furnished with heavy duty stainless steel, plain bearing hinges with stainless steel pins. The hinges shall be fastened to the covers and frames with stainless steel machine screws. The hinged covers shall be provided with flush lift handles fabricated from 1/2-inch diameter aluminum rod, alloy 6061-T6511.
- D. A single leaf of hinged plate covers shall be no greater than 3 feet square in size.
- E. Removable plate covers shall have 1-inch diameter finger holes to facilitate removal. All edges of holes cut in the plate covers shall be ground smooth.
- F. Removable plate covers shall be no greater than 14 square feet in size with the longer dimension no greater than 7 feet.
- G. Gasket plate covers shall have continuous compressible neoprene seals between the cover and frame at the perimeter. The covers shall be secured to the frames with countersunk, flathead, stainless steel machine screws spaced approximately 6 inches on centers.

2.17 GUARD CHAINS

Removable guard chains at openings in aluminum pipe railings shall be fabricated from wrought, non-welded aluminum chain having 12 links per foot. The chains shall be secured to aluminum eyes bolted or welded to pipe stanchion at one end of the opening. The free ends of the chains shall be provided with hooks formed from 1/4-inch diameter solid aluminum rod for attaching to similar eyes in the pipe stanchion at the opposite end of the opening.

2.18 LIFTING HOOKS

- A. Lifting hooks in concrete shall be fabricated from 3/4-inch diameter steel rod bent in a U-shape and threaded at the ends to receive nuts. The lifting hook shall be fastened to a 1/2-inch by 4-inch by 8-inch steel anchor plate and the assembly placed in the formwork before the concrete is placed. Lifting hook assemblies shall be hot-dip galvanized after fabrication.
- B. Lifting hooks supported from steel shall be fabricated 3/4 inch diameter steel rod bent in a U-shape and threaded at both ends to receive nuts. The lifting hooks shall be placed in punched holes in the bottom flange of steel beams and secured in place by nuts as indicated. Lifting hooks and appurtenances shall be hot-dip galvanized.

2.19 SAND TRAP GRATING AND FRAME

The sand trap grating and frames in the building shall be heavy duty weight constructed of high strength gray iron.

2.20 CAST IRON WHEEL GUARDS

- A. Wheel guards where indicated on the Drawings shall be cast iron guards of the sizes and types indicated on the Drawings and as herein specified and shall be manufactured by Neenah Foundry Company, Neenah, WI; Flockhart Foundry Company, Newark, NJ; McKinley Iron Works, Fort Worth, TX; or equal. Wheel guards shall be given one shop coat of rust inhibitive paint before shipment.
- B. Wheel guards shall be heavy duty concrete fill type, cast iron wheel guards, No. R-4983-C manufactured by Neenah Foundry Company; Type 706A manufactured by Flockhart Foundry Company; or an acceptable equivalent product. The guards shall be set 2 inches into the pavement and shall be bolted to the masonry walls. The guards shall be filled with Class A concrete and the top of the fill sloped at a 15 degree angle from the building.

2.21 CAST ALUMINUM NOSINGS

- A. The cast aluminum nosing shall be abrasive cast aluminum nosings securely fastened with stainless steel, flat head bolts and wing anchors set into the fresh concrete. The nosings shall be the products of Wooster Products, Inc., Wooster, OH; American Abrasive Metals Company, Irvington, NJ; Andco Building Specialties, Division of Andco Industries Corporation, Greensboro, NC; or equal.
- B. Cast aluminum nosings for concrete steps and platforms shall be of the widths indicated and shall be Type 101 made by Wooster Products, Inc.; Style A made by American Abrasive Metals Company; Style 801 made by Andco Building Specialties, or equal.

2.22 FLOOR HATCHES AND FRAMES

- A. The floor hatches and frames shall be flush floor hatches manufactured by the Bilco Company, New Haven, CT; or equal. The hatches shall be double leaf gutter type and of the sizes indicated on the Drawings. The hatches shall be factory assembled and shipped complete with frame for installation on the job. The hatches shall be furnished with hinges, hold open safety lock bars, and flush lift handles. Gutter type hatches shall have a 1-1/2 inch drainage coupling located in on corner of the channel frame.
- B. The floor hatches and frames shall be fabricated from aluminum with 1/4-inch extruded aluminum frames and 1/4-inch diamond checkered aluminum plate covers. The covers shall be reinforced to be capable of withstanding a uniform live load of 300 psf.

2.23 ACCESS DOORS

Doors shall be flush panel access doors as manufactured Inryco Inc., Milwaukee , WI; Karp Associates, Inc., Maspeth, NY; BOICO, Birmingham, AL; or equal. Doors and frames to be galvanized steel with concealed hinge and flush screw driver operated locks.

2.24 SAFETY CHAIN

Safety chain shall be 3/8-inch trade size, proof coil, welded polyester coated low carbon steel in OSHA safety yellow designed for barrier chain application as manufactured by Campbell Chain Company, York, PA., or equal.

2.25 CASTINGS

All miscellaneous iron casting shall be of best quality materials free from flaws and unsightly defects. Gray cast iron shall be ASTM A-48 Class 35 (35,000 psi tensile strength). Furnish and install in the locations indicated casting of the type and size shown on the Drawings.

2.26 CARPENTER'S IRON WORK

Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required for framing and supporting woodwork and for anchoring or securing woodwork to concrete or other structures. Manufacture or fabricate items of sizes, shapes, and dimensions required. Furnish malleable iron washers for heads and nuts which bear on wood structural connections, elsewhere, furnish steel washers.

2.27 MISCELLANEOUS FRAMING AND SUPPORTS

Provide miscellaneous steel framing and supports as required to complete the work. Fabricate miscellaneous units to the sizes, shapes, and profiles shown or if not shown, of the required dimensions to receive adjacent grating plates, louvers, vents, grilles, screens or other work to be retained by the framing. Except as otherwise shown, fabricate from structural steel shapes and plates and steel bars of all welded construction using mitered corners, welded brackets and splice plates and a minimum number of joints for field connection. Cut, drill and tap units to receive hardware and similar items to be anchored to the work.

PART 3 - EXECUTION

3.01 ANCHORAGE ITEMS

The Contractor shall furnish all bolts, nuts, shims, pins, screws, straps, nails and other anchors which may be required by the Drawings or job conditions to secure all items permanently in place whether or not specifically called for or shown on the Drawings.

3.02 FABRICATION AND INSTALLATION OF METAL WORK

- A. General: All metal items shall be accurately fabricated and erected with exposed joints close fitting. All joints shall be of such character and so assembled that they will be as strong and rigid as adjoining sections. Joints shall be located where least conspicuous. Items shall have smooth finished surfaces except where otherwise shown or specified.
- B. Built-in Items: Members or parts to be built-in with masonry or concrete shall be in a form affording a suitable anchorage or shall be provided with approved anchors, expansion shields or other approved means of securing members.
- C. Dissimilar Metals: Ferrous and non-ferrous metals shall be insulated at all contacts with felt washer, strips or sheets, bitumastic paints, or other acceptable means. All aluminum surfaces in contact with concrete shall be coated with two (2) coats of Federal Specification TT-V51F Asphalt Varnish, or approved equal.
- D. Connections:

1. All required anchors, couplings, bolts, and nuts required to support miscellaneous metal work shall be furnished and installed as required.
 2. Weights of connections and accessories shall be adequate to safely sustain and withstand stresses and strains to which they will be normally subjected.
 3. Connections shall be bolted except where welding is called for in the Drawings. Bolts shall be 3/4-inch diameter unless noted or required otherwise.
- E. Expansion Anchors:
1. Expansion anchors shall be installed in holes drilled into concrete with carbide tipped drill bits conforming to ANSI B94.12-1977, using a rotary impact hammer for 1/2-inch and 3/8-inch anchors. Hole depth shall equal or exceed the anchor manufacturer's minimum recommended embedment. Should hole depth equal anchor manufacturer's minimum recommended embedment, hole shall be cleaned out by air pressure. The minimum hole depth shall be per anchor manufacturer's recommendations. Contractor shall assure hole is perpendicular and conforms in size to anchor manufacturer's recommendation.
 2. Washer and nut shall be assembled on anchor so that the top of the nut is flush with the top of the anchor. Then the anchor shall be driven into the hole through the work until the washer bears against the work. The anchor shall be expanded in accordance with the manufacturer's recommendations.
 3. General: Provide stainless steel fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.
 4. Bolts and Nuts: Regular hexagon head type, stainless steel, Grade A.
 5. Lag Bolts: Stainless steel.
 6. Machine Screws: Stainless steel.
 7. Wood Screws: Stainless steel.
 8. Plain Washers: Stainless steel.
 9. Masonry Anchorage Devices: Stainless steel.
 10. Toggle Bolts: Stainless steel.
 11. Lock Washers: Stainless steel.

3.03 WELDING

Welding procedures, welders and welding operators, both for shop and field welding, shall be qualified and certified in accordance with the requirements of AWS D1.1 "Welding in Building Construction" of the American Welding Society. Manufacturer's and fabricator's shop drawings shall clearly show complete information and Contractor shall perform all field welding in conformance with this information regarding location, type, size and length of all welds, all in accordance with AWS A2.0 "Standard Welding Symbols" of the American Welding Society. Special conditions shall be fully explained by notes and details.

3.04 HOT-DIP GALVANIZING

- A. All fabrication, galvanizing and repair shall comply with ASTM Standards as they apply in accordance with the publication "ASTM Standards for Materials Hot-Dip Galvanized after Fabrication, 1981" issued by American Hot-Dip Galvanizers Association, Inc. In particular, the following specific standards shall apply to work under this contract: ASTM A-123, A-153, A-384, A-385, A-563 and A-780.
- B. Items to be galvanized shall be fabricated in accordance with ASTM A-385-80.
- C. Galvanizing for fabricated steel items shall conform to ASTM A-123-78 and shall be done after fabrication. Steel assemblies shall be subject to safe guarding from warpage and distortion during galvanizing per ASTM A-384-76.
- D. Galvanizing for structural steel fasteners and hardware shall conform to ASTM A-153-80. Galvanized bolts, nuts and washers shall be centrifugally spun after galvanizing. Nuts shall have threads tapped oversize, after galvanizing, per ASTM A-563-80.
- E. Upon field erection, any damage measuring more than 1/10-inch wide shall be repaired with a zinc-based solder or zinc-rich paint in accordance with ASTM A-780-80. Marred, damaged, or uncoated areas 4 square inches and less shall be patched with a zinc-based solder to a thickness of 5 milligrams; areas greater than 4 square inches shall be patched with an organic zinc-rich paint to a dry film, Devcon Z, LPS Instant Cold Galvanized; or equal. The resident project representative shall determine the extent of damage which would require recoating.
- F. Items subject to distortion during transit, such as thin, curved members, etc., shall be stacked on edge and/or blocked to prevent radius change or other distortion while in transit to and from the galvanizing plant.

3.05 PAINTING

Painting of miscellaneous ferrous metal work is specified under Division 9.

3.06 MISCELLANEOUS METAL FABRICATIONS

- A. Rough Hardware:
 - 1. Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures. Straight bolts and other stock rough hardware items are specified in Division 5.
 - 2. Fabricate items to sizes, shapes and dimensions required. Furnish malleable iron washers for heads and nuts that bear on wood structural connections; elsewhere, furnish steel washers.

B. Miscellaneous Steel Trim:

1. Provide shapes and sizes for profiles shown. Except as otherwise indicated, fabricate units from structural steel shapes and plates and steel bars, with continuously welded joints and smooth exposed edges. Use concealed field splices wherever possible. Provide cutouts, fittings and anchorages as required for coordination of assembly and installation with other work.
2. Galvanize miscellaneous steel trim where indicated.

END OF SECTION 05500

Division 11 – Equipment

SECTION 11022 – PERFORATED PLATE FILTER SCREEN

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes: Requirements for furnishing one (1) fine screen with perforated filter panels and associated controls. Equipment shall be installed as shown on the as indicated on the contract drawings and as specified herein, as recommended by the supplier and in compliance with all local, state and federal codes and regulations.
- B. Each fine screen shall be furnished with perforated filter panels, drive chain, sprockets and bearings, rotating self-adjusting cleaner brush, deflector roller, spray water system, drive motors, gear reducers, anchor bolts, controls and all accessories and appurtenances specified or otherwise required for a complete and properly operating installation.

1.02 MANUFACTURER

- A. The screening equipment specified in this section is the Enviro-Care[®] Company FSM Perforated Filter Screen Model FRSIII 550 x 60/6. Substitute equipment must be modified as necessary to provide the specified features and to meet the specified requirements as intended by the Engineer.

1.03 REFERENCES

- A. The FSM Perforated Filter Screen Model FRSIII shall, as applicable meet the requirements of the following industry standards:
- AISI (American Iron and Steel Institute)
 - ANSI (American National Standards Institute)
 - ABMA (American Bearing Manufacturers Association)
 - AGMA (American Gear Manufacturers Association)
 - NEMA (National Electrical Manufacturer's Association)
 - NFPA (National Fire Protection Association)
 - ASTM (American Society for Testing and Materials)
 - WSC (American Welding Society Code)
 - ASME (American Society of Mechanical Engineers)
 - NEC (National Electrical Code)
 - UL (Underwriters Laboratory Standards)

1.04 EXPERIENCE

- A. In order to establish a quality standard for the manufacture and production of the equipment, all manufacturers shall meet the requirements listed in this section.
- B. Manufacturer shall have a minimum of ten years of experience in producing substantially similar equipment, and shall be able to show evidence of at least fifty (50) installations in satisfactory operation for at least five years.
- C. The minimum acceptable standards for the equipment shall conform to the project contract documents as outlined in the respective sections of the specifications and drawings.

1.05 SUBMITTALS

- A. The Manufacturer shall furnish the required number of submittals (and an electronic version if required) within 4 - 6 weeks of receipt of the order to verify compliance with the specification. The submittals shall include:
 - 1. Certified general arrangement drawings showing all important details including materials of construction, dimensions, loads on supporting structures, and anchor bolt locations.
 - 2. A list of all deviations from drawings and specifications.
 - 3. Descriptive literature, bulletins and/or catalogs of the equipment.
 - 4. Complete data on motors and gear reducers.
 - 5. Wiring diagrams and electrical schematics for all control equipment to be furnished.
 - 6. Describe the automatic adjusting cleaner brush.
 - 7. Describe method of checking and adjusting drive chain tension.
 - 8. Provide details of the area at the bottom of the screen to show how the screen will pick up large objects off the channel floor.
 - 9. Provide details of the bottom of the screen that shows the method employed to prevent buildup of grit and small stones beneath the screen and to prevent wear on the screen elements.
 - 10. Provide independent certified test data confirming screen SCR value with perforated panels of the same size as specified herewith. Testing shall confirm the percentage of all material captured by the screen as documented by the National screen evaluation facility at Chester Lee Street in England by TRPM and Northumbrian Water. The documented report of the test which shows the result of screenings capture rate (SCR) must be provided with submittals.

1.06 WARRANTY

- A. All Enviro-Care equipment is covered against manufacturing defects in materials and workmanship during normal use and service for a period of one (1) year from date of start up as long as periodic maintenance procedures are followed and performed. Items specifically not covered by the warranty are consumable wear parts as identified in the O&M manual.

- B. The screens shall be unconditionally guaranteed to meet or exceed design criteria detailed in Part 2 of this specification.
- C. Lower bearing/bottom revolving guide disk with incorporated bearing shall be guaranteed for five (5) years.

PART 2 - PRODUCTS

2.01 MANUFACTURER

- A. The following manufacturers are named to establish a standard of quality necessary for the Project:
 - 1. Enviro-Care – FSM Perforated Screen FRSIII, or equal.

2.02 QUALITY ASSURANCE

- A. Equipment manufacturer shall be ISO 9001 certified.
- B. The FSM Perforated Filter Screen will be fully assembled and run to confirm fit and function of the screen. A certificate of the shop run test shall be supplied with the shipping documents.
- C. The FSM Perforated Filter Screen will be shipped to the site fully assembled, if possible, and dependent upon the height of the screen. Some ancillary components may be removed to prevent damage during shipment.
- D. Shop Surface Preparation/Coating: All weldments shall be cleaned and passivated using a full dip passivation process to remove weld spatter, slag and discoloration. Bearings, electrical devices, drive and wiper chains and sprockets, motor and gear reducer shall be provided with the manufacturer's standard coating system. Screen weldments not full dipped passivated, using spray on cleaning solutions, passivating welds only or bead blasting shall not be allowed.
- E. Definitions
 - 1. Screen Height: The height between the operating floor and the top of the perforated plate screens.
 - 2. Discharge Height: The height between the operating floor and the screenings discharge.
 - 3. Head Loss: Total difference in elevation of the water level upstream of the upstream screening elements and downstream of the downstream return elements.

4. Percent Blinded: Percentage of submerged area of partially blinded perforations relative to total area of non-blinded perforations.
5. Maximum Differential Head: Maximum difference in elevation of the water level upstream and downstream of the upstream screening elements that the screen will experience during emergency conditions (i.e. screen fully plugged).
6. Screenings Capture Rate (SCR) / Efficiency: Percentage of all material captured by the screen as documented by the National screen evaluation facility at Chester Lee Street in England by TRPM and Northumbrian Water. The documented report of the test which shows the result of screenings capture rate (SCR) must be provided with submittals.
7. Screen Angle: Angle of screen frame incline from horizontal plane parallel with mounting floor.

2.03 PERFORMANCE REQUIREMENTS

A. Perforated Filter Screens

1. Solids will collect on a continuous belt of perforated filter panels perpendicular to the flow, elevating solids to the discharge point. The perforated filter panels shall be cleaned by means of an automatic adjusting rotating cleaner brush. Screens that do not have an automatic adjusting rotating cleaner brush shall not be allowed.
2. The perforated filter panels shall be driven by drive sprockets secured to the main drive shaft.
3. Perforated plate screens shall be designed in accordance with the following performance and configuration requirements:

Conditions	Unit
Number of screens	One (1)
Influent Type	Municipal Wastewater
Current Peak flow per screen (MGD)	0.9
Future Peak flow per screen (MGD)	5.0
Downstream Liquid Level at Future Peak Flow (in)	26.5
Headloss at Future Peak Flow @ 30% Blinding (in)	11.3
Screen Panel Perforation Diameter (mm)	6
Channel Width (in)	30
Channel Depth (ft)	4.5
Screen Inclination	60 degrees
Screenings discharge height from top of channel (ft)	4.0
Minimum Screenings Capture Ratio (SCR)	XX%

4. The minimum screening capture rate for 6 mm perforation must be 85% this result must be confirmed by the National screen evaluation facility at Chester

Lee Street in England by TRPM and Northumbrian Water. The documented report of the test which shows the result of screenings capture rate (SCR) must be provided with submittals.

2.04 UTILITY REQUIREMENTS/ENVIRONMENTAL CONDITIONS

Requirements/Locations	Unit
Spray water flow and pressure:	15 gpm at 45 psi
Power Supply (V/P/Hz)	480/3/60
Screen Installation Location (indoor/outdoor)	Outdoor
Screen NFPA Classification Requirement	Non-hazardous
Control Panel Location (indoor/outdoor)	Outdoor
Control Panel NFPA Classification Requirement	Non-hazardous

2.05 MATERIALS OF CONSTRUCTION

- A. All moving wetted parts, all wetted parts on which moving parts ride, all filter belt components under guiding, bearing, or driving loads shall be 304 stainless steel, wear resistant heat treated, high tensile, wear resistant steel, or UHMW-PE as noted below:
1. The frame shall be minimum 4 mm thick type 304 stainless steel.
 2. The discharge chute, and all covers shall be type 304 stainless steel.
 3. The screen and brush drive shafts shall be type 304 stainless steel.
 4. The rotating deflector shall be from type 304 stainless steel.
 5. The lower sprocket stub shafts shall be from type 304 stainless steel.
 6. The upper and lower sprockets shall be type 304 stainless steel with only the wear area hardened.
 7. The screening elements shall be one piece curved from type 304 stainless steel and will not require upstream protection using coarse bar screens. Screens that require upstream protection shall not be permitted.
 8. The special designed heavy duty drive links will be from type 304 stainless steel.
 9. The side and bottom seals shall be replaceable contoured UHMW-PE with 304 stainless steel fasteners.
 10. The bottom seal between the lower end of the screen frame and the width of the filter panels shall be from Buna-N rubber and shall include a triple layer polyester brush with a 304L stainless steel adjustable holder.
 11. The screening element support rails shall be 304 stainless steel with UHMW-PE wear surface or equivalent.
 12. Spray bars from shall be 304 stainless steel.

13. All fasteners shall be 304 stainless steel.
14. All other appurtenances shall be of manufacturer's standard coated material.

2.06 EQUIPMENT DESIGN FEATURES

A. General

1. The screen shall be designed to provide maximum solids filtration and thus maximize capture of debris and minimize rate of head loss increase through the screen. This shall be achieved by means of one piece perforated curved filter elements. The maximum perforated opening shall be 6 mm. The screen will be operated intermittently by means of differential head measurement.
2. The screen shall be mounted by fastening to the top of the channel. The screen mounting system shall be constructed of 304 stainless steel and complete as required to function in accordance with the specification. Routine service, repair or replacement of damaged parts, shall be possible with the screen in the channel.
3. The use of roller chain, filter shafts and rollers and/or two or more motors for screen rotation is not acceptable.
4. Unit shall be designed so that maintenance of the drive mechanism can be accomplished at operating floor level. Screen elements shall be capable of removal at the operating level without taking the screens out of the channel or effecting the continuous or intermittent rotation of the screen.
5. The screen shall be factory assembled and tested prior to delivery and shall be delivered to the site fully assembled (other than the motor/reducer unit, discharge chute, and support legs). It shall be capable of being set in place and field erected by the contractor with minimal field assembly.
6. The influent screening system shall include a perforated plate screen and a washer/compactor system. The perforated plate screen shall be a self-contained screening system used to capture and transport wastewater debris to the washer/compactor system.
7. Influent screening system shall be designed for continuous and intermittent operation. The perforated plate screens shall be installed in the channel as shown on the Contract Drawings.
8. All components shall be amply proportioned for all stresses that may occur during manufacturing, transportation, erection, and operation.

B. Filter Screen

1. The one piece curved screening elements shall be minimum 1/8" thick and fixed by four fasteners to the heavy duty chain drive links having 7.87" pitch x 1.38" x 0.2" thick section which shall ride on 2" x 1.5" thick UHMW-PE supports located on the upstream and downstream sides of the screen. On every tenth

screen panel a set of static, non-engaging 'finger' type lifters shall be attached to the lower edge of the panel, designed specifically to lift spherical and large size solids (stones, square lumber cans, bottles, rag clumps, etc.) from the bottom of the channel. Screens that use lifting ledge on top of the panel thereby preventing the removal of solids from the bottom of the channel floor will not be permitted. To prevent metal to metal wear and bearing damage no submerged roller bearing wheels and spindles will be allowed. Screens which do not support the drive chains on the downstream side will not be approved.

2. A submerged stainless steel plate shall be provided at the base of the screen. The base of the screen shall be fitted with a rubber seal 10 mm thick directly followed by a nylon brush along the full length of the filter panel to prevent ingress of stones and grit and to prevent solids bypass.
3. Two (2) upper sprockets from $\frac{3}{4}$ -inch thick type 304 stainless steel with 7.87 inch pitch. Upper sprockets shall be split to allow removal without having to remove the drive shaft.
4. Two (2) revolving $\frac{3}{4}$ -inch thick lower guides with 7.87 inch pitch. Lower revolving guide bearings shall be slide bushing from bronze with a 316 stainless steel 3.15 inch stub shaft. Complete unit sealed with stainless steel cover, O-rings and v-rings seals. Grease line from stainless steel brought to operating level. Ball or roller bearings or slide bushings made of plastic or ceramic shall not be accepted as a lower sprocket bearing.
5. To prevent deflection, the one-piece filter elements shall have a minimum thickness of $\frac{1}{8}$ " and shall be made of curved stainless steel. This is required to insure structural integrity and smooth operation. Engaging tines, fingers or engaging elements, which can bind or jam, will not be acceptable. Filter panels that are not curved shall not be acceptable. Filter panels with a flat face inclined and a horizontal ledge shall not be allowed.
6. The screening elements are to be of the engineered curved shaped so that they can be cleaned with optimum efficiency with an automatic adjusting rotating cleaner brush. Minimum diameter of rotating cleaner brush is 450 mm. The rotation direction of the brush drive must be in the opposite direction of the belt drive.
7. The rotating cleaner brush shall have a minimum diameter of 450 mm and be self-adjusting with no manual or motorized adjuster mechanism. The motorized cleaner brush will automatically adjust as the brush wears during use. The automatic adjustment will maintain consistent cleaning efficiency at a SCR value of 85%. The distance between the cleaner brush and filter panels will be automatically controlled to ensure the distribution and magnitude of pressure is equal across the entire filter panel surface. Systems that use gas springs or struts to adjust brush shall not be permitted. Screens with rotating cleaner brushes requiring manual adjustment or adjustment with gas cylinders or a motor shall not be permitted.

8. The lifting fingers are located on each tenth filter plate. The lifting fingers must be located on the lower area of the filter element. Systems where these fingers are near the middle or top of the element are not permitted. They will be designed to remove spherical solids from the bottom of the channel, which may otherwise roll back off the screen face and accumulate thus creating a wear problem as the screen elements are moving thru the solids as they ascend on the upstream side of the screen.
9. The screening elements must be sealed against the chain by means of special knuckle joint side plates attached to each perforated plate filter element. Maximum gaps between the screen panels and side frame is 1 mm. For wear resistance, the side plates must be made in stainless steel. Screening elements with plastic or fiberglass side seal plates shall not be allowed. Simple brush systems are not permitted. This is to ensure that small items are not floated past the sides of the screening elements.
10. A rotating deflector consisting of a 304 stainless steel tube roller wiper fabricated from 3.5 inches O.D. complete with 1.75 inches diameter stainless drive steel shafts at each end supported by two-hole flange bearings and auxiliary driven by screen drive unit. The roller wiper shall turn at max 20 rpm and function to seal the gap between the filter panels and discharge chute and to direct the heavier solids removed from the screen by the revolving brush cleaner into the screenings wash press inlet hopper. The rotating deflector prevents bypassing of solids into the downstream channel. Screens supplied with a brush scraper and/or a static deflector that is not self-cleaning shall not be permitted

C. Filter Screen Panels

1. The screen filtration belt shall be provided with one piece perforated curved elements, which limits the maximum opening in any direction to the perforated opening size detailed in Paragraph 2.03.A.3-Screen Panel Perforation Diameter. This restricted opening profile prevents long thin materials from passing through the openings. Filter panels that are not curved shall not be acceptable. Filter panels with a flat face inclined and a horizontal ledge shall not be allowed.
2. No cleaning devices which cause trash to be pushed or dropped into the interior of the filtration belt will not be allowed.
3. The individual screening elements must not exert stresses on one another and the load transmission must be exclusively via chains. Systems which involve connecting the screen elements together with other or additional attachments are therefore not permissible because of stressing. Furthermore, the elements must not be able to overlap one another, which would create spaces in which material could collect.
4. The horizontal space between each adjoining screen panels will not exceed 1mm +/- 10% at any point between any adjacent panels.

5. To control the buildup of biological slimes behind the screen panels, a 1-inch diameter internal spray water wash spray bar will be provided, manufactured from stainless steel with PVDF spray nozzles. The spray bar will be attached in the internal space between the rotating screen panels and the spray water will be directed to wash each screen panel as the panel moves past the spray nozzles. The spray bar will supply approximately 9 gpm per ft. width of screen panel at a pressure of 40 - 45 psi. The spray orifices will be non-plugging and suitable for use with treated effluent water. A minimum 1" NPT connection will be located on one side of the screen frame above the operating floor level and the water supply connection will include an inline strainer, manual operated ball valve, and solenoid valve suitable for attaching to the 1" NPT connection. Systems that require spray bars to assist with removing screenings from the filter panels shall not be allowed. The nozzle system for cleaning the belt must be located after the cleaning by the brush. Systems with a spray bar prior to the brush are not permitted.

D. Chain and Sprockets

1. The filter panel drive chains shall be equal in pitch to the upper and lower drive sprockets.
2. Chain shall be heavy-duty block chain, which is supported outside the frame by UHMW-PE, a hardwearing, high lubricity synthetic material. Chain link material shall be as Paragraph 2.05.A.8. Breaking load of the chain minimum 20,232 lbf (90 kN). Chain shall have no rollers. Chain shall have no metal to metal wear associated with running roller chain in the screen frame.
3. Each screen shall be provided with two identical drive sprockets from material as per Paragraph 2.05.A.6. Sprocket pitch and width shall match the heavy duty chain – 7.87-inches. The sprockets shall be mounted on a drive shaft from material as per Paragraph 2.05.A.3 mounted between grease-able bearings mounted on the external side of the frame.
4. Chain drive shaft bearings shall be four-hole flange mounted to a stainless steel plate. The bearings shall be grease lubricated. Chain tension adjustment is achieved via the take up screws attached to the flanged mounting plate. The take screw shall be an acme thread type from type 18-8 stainless steel. The bearing casing shall be made of paint coated cast iron. Units using threaded rod shall not be allowed.
5. Chain guides shall be secured to the screen frame for the full height of travel. A guide track shall also be located at the bottom of screen to allow the chain to travel from a downward to an upward direction. The chain guides shall accurately guide the chain and filter panels. The chain guide tracks shall be as Paragraph 2.05.A.10.

E. Screen Drive Mechanism

1. Motor: 1.0 HP 1760 rpm TEFC geared motor suitable for 460/3/60 electrical supply. Overload protection shall be provided by a true power monitor electrical overload device that senses the motor power factor.
2. Gear Reducer:
 - a. Helical Worm type from SEW.
 - b. Hollow, shaft type.
 - c. Anti-friction bearings.
 - d. AGMA I rating.
3. All drive components shall be designed to operate the screen continuously under a calculated load resulting from the differential water level between the upstream and downstream sides of the screen.
4. Minimum filter panel speed shall be 10 fpm.

F. Brush Drive Mechanism

1. Motor: 2.0 HP 1760 rpm TEFC geared motor suitable for 460/3/60 electrical supply.
2. Gear Reducer:
 - a. Helical Worm type from SEW.
 - b. Hollow, shaft type.
 - c. Anti-friction bearings.
 - d. AGMA I rating.

G. Rotating Deflector Drive Mechanism:

1. Auxiliary driven from Screen drive. Screens that require a third motor for the rotary deflector shall not be allowed.

H. Discharge Chute/Hood:

1. A discharge chute/hood shall be provided that fully encloses the discharge section of the screen. The upper section of the discharge chute/hood shall be hinged to allow complete access the screen cleaner brush. The hinged hood shall be secured with quick closing clamps and supplied with two (2) gas cylinders from stainless steel to aid opening and closing
2. Discharge chute shall be from type 304 stainless steel.
3. Each screen discharge chute/hood shall direct screenings directly to the compactor or other device. Outlet shall extend down to the inlet of the compactor

and shall be designed to match the screenings compactor inlet hopper with no water leaking or screenings dropping to the floor.

I. Frame Enclosures / Covers

1. The screen shall be provided with easily removable, sufficiently stiffened covers made of 18 gauge 304 stainless steel plates with edges on all sides.
2. Covers shall be provided on the upstream and downstream portion of the screen above the operating floor.
3. Covers shall be secured in place using quarter turn tool operated stainless steel cam latches.

2.07 ELECTRICAL CONTROLS AND DEVICES

A. Control Panel: 480 volt primary control panel shall be provided with a type 304, stainless steel, NEMA 4X enclosure. Panel shall be suitable for wall mounting with the following electrical components to provide proper operation of the equipment.

1. Main disconnect with through door interlock handle.
2. Step down control transformer.
3. Branch circuit protection.
4. Screen and brush motor starters with overloads.
5. Power monitor for screen motor overtorque/overload protection.
6. Emergency stop pushbutton.
7. Hand-Off-Auto selector switches for screen and brush drive.
8. Open – Close – Auto switch for screen wash water solenoid valve.
9. Power monitor shall provide overload protection for screen drive by sensing motor power factor.
10. Hour meter for each motor.
11. Control power on, run and fault indicating lights.
12. Alarm reset pushbutton.
13. Programmable relay to control screen control logic functions.
14. Run and alarm auxiliary contacts for use by the customer.
15. UL label.

B. Local Emergency Stop Pushbutton: A local emergency stop pushbutton station will be provided in a NEMA 4X enclosure for field mounting at the screen unit.

C. Ultrasonic level sensor

1. Ultrasonic Level Controller: A 120V differential level controller shall be provided in a windowed NEMA 4X polycarbonate enclosure suitable for wall mounting, to receive and interpret a 4-20mA scaled signal from an upstream and downstream transducer. The controller shall have 5 internal relays and provide an LCD display.
2. Ultrasonic Level Transducer: Two (2) ultrasonic level transducers shall be provided with type 304 stainless steel mounting brackets and expansion anchors. Each sensor shall have an ETFE housing with an integral sensor to provide compensation for acoustic variations due to temperature. Each sensor shall have a range of 1-33 ft and be supplied with a 33 ft integral cable. Sensor shall be suitable for installation in a Class 1, Division 1, Group D area.

2.08 OPERATION, MONITORING, AND CONTROL

- A. Screen and Brush Hand Operation: In HAND position the operator shall be able to run the screen or brush assembly by selecting the respective HOA selector switch. Turning the screen selector switch to Off will stop the unit. Screen drive motor is interlocked with the brush motor. Brush motor must be on if the screen is in operation.
- B. Screen Automatic Operation: When the Screen and Brush are in AUTO position the screen shall be controlled by the water level sensors. Screen operation shall be started when the water level sensors monitor a certain water level difference, when the sensor senses high upstream water level, high differential, or when a certain time has passed since the last operation of the screen. Screen operation shall be stopped with an adjustable delay time after the water difference is below a certain value and after the sensor reads the correct water level, or after a certain run time has expired (if operation was started by timer).
- C. Wash water solenoid valve Operation: In HAND position the wash water solenoid valve will open. In the CLOSE position the wash water solenoid valve will close.
- D. Wash Water Automatic Operation. The wash water solenoid valve will open and close via a repeat cycle timer whenever the screen is in operation.
- E. Fault Conditions:
 1. Excessive motor power will trip the starter overload relays, immediately stop the drive or brush motor, and illuminate the alarm indicating light. This fault must be reset by depressing the associated motor starter overload reset internal to the control panel.
 2. Momentary drive high torque will trip the screen motor power monitor, immediately stopping the screen drive motor, and illuminate the alarm indicating light. Pushing the reset pushbutton will reset this fault.

2.09 ANCHORAGE AND FASTENERS

- A. Anchor Bolts: All anchor bolts shall be a minimum of 1/2 inch diameter and made of type 304 stainless steel. The equipment supplier shall furnish all anchor bolts, nuts, and washers required for the equipment.
- B. Fasteners: All fasteners shall be type 304 stainless steel. The equipment supplier shall furnish all fasteners required for the assembly of the equipment.

2.10 SPARE PARTS

- A. The following minimum spare parts shall be provided for the perforated filter screen (total) –
 - 1. Three (3) filter panels.
 - 2. One (1) complete set of replacement cleaner brush elements.
 - 3. Five (5) feet of chain with one (1) master link.
- B. Manufacturer shall recommend any additional spare parts deemed necessary based on experience with the screen in similar applications.

PART 3 - EXECUTION

3.01 PREPARATION

- A. The mounting points of the channel shall be level and parallel and of proper size.
- B. Contractor shall verify all dimension in the field to ensure compliance of equipment dimensions with the drawings.

3.02 INSTALLATION

- A. The installation is the responsibility of the Purchaser. Complete installation procedures are included in the O&M manual shipped with the unit.

3.03 START UP/TRAINING/FIELD QUALITY CONTROL

- A. The initial start-up of Enviro-Care equipment will be performed by Enviro-Care personnel and/or an authorized Enviro-Care representative. The Enviro-Care authorized representative will verify the proper operation and installation, and provide training to the equipment operators. One (1) trip for a total of two (2) days is allotted.

3.04 ADJUSTING AND CLEANING

- A. Information on minor periodic adjustments and cleaning is contained in the Operating and Maintenance Manual.

PART 4 - OPTIONAL ITEMS

4.01 PIVOT ASSEMBLY (Replaces Paragraph 2.06.A.2)

- A. The screen shall be mounted by fastening to the top of the channel and include a pivoting support arrangement to pivot the screen from the channel without dewatering the channel. The pivot will be attached to the screen frame and top of the channel to allow the screen to be pivoted above the top of the screw wash press following the removal of the inlet hopper attached to the unit. It will not be necessary to disassemble or move the compactor from its fixed position. The pivoting system shall be constructed of 304 stainless steel and complete as required to function in accordance with the specification. Routine service, repair or replacement of damaged parts, shall be possible with the screen in the channel.

4.02 HEAT TRACING/FREEZE PROTECTION

- A. The screen is supplied with a NEMA 7 radiant heater under the front cover to prevent screenings from freezing to the filter panels.
- B. Wiring from the heater cable shall terminate in a factory mounted NEMA 4X junction box for field connection by others.
- C. The control panel shall include integrated heat trace circuits rated for the appropriate wattage as determined by the manufacturer.
- D. GFCI circuit breaker added to control panel to power the screen heater.
- E. One (1) ambient temperature thermostat shall be provided to control power to the screen heater. The thermostat shall be 120 Volt, single phase, with a NEMA 4X housing. The temperature set point shall be selectable by an adjustable dial.

END OF SECTION 11022

SECTION 11380 – SCREW WASH PRESS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. This section includes: Requirements for furnishing one (1) screenings wash press and associated controls. Equipment shall be installed as shown on the as indicated on the contract drawings and as specified herein, as recommended by the supplier and in compliance with all local, state and federal codes and regulations.
- B. Each screenings wash press will consist of a flange mounted gearmotor, spiral with separate thrust bearing, wash water spray system, stainless steel trough, wash zone, press zone, discharge piping, electrical controls, and all other appurtenances required or shown on the drawings.

1.02 MANUFACTURER

- A. The screenings wash press equipment specified in this section shall be the Enviro-Care[®] Company FSM Screw Wash Press Model SPW200-700. Substitute equipment must be modified as necessary to provide the specified features and to meet the specified requirements.

1.03 REFERENCES

- A. The FSM Screw Wash Press Model SPW shall, as applicable meet the requirements of the following industry standards:
 - AISI (American Iron and Steel Institute)
 - ANSI (American National Standards Institute)
 - ABMA (American Bearing Manufacturers Association)
 - AGMA (American Gear Manufacturers Association)
 - NEMA (National Electrical Manufacturer's Association)
 - NFPA (National Fire Protection Association)
 - ASTM (American Society for Testing and Materials)
 - WSC (American Welding Society Code)
 - ASME (American Society of Mechanical Engineers)
 - NEC (National Electrical Code)
 - UL (Underwriters Laboratory Standards)

1.04 EXPERIENCE

- A. In order to establish a quality standard for the manufacture and production of the equipment, all manufacturers shall meet the requirements listed in this section.

- B. Manufacturers shall have a minimum twenty five (25) years history of engineering and fabricating screenings wash presses. Documentation of at least ten (10) installations having been installed for a minimum of five (5) years shall be provided.
- C. The minimum acceptable standards for the equipment shall conform to the project contract documents as outlined in the respective sections of the specifications and drawings.

1.05 SUBMITTALS

- A. The Manufacturer shall furnish the required number of submittals (and an electronic version if required) within 4 – 6 weeks of receipt of the order to verify compliance with the specification. The submittals shall include:
 - 1. Certified general arrangement drawings showing all important details including materials of construction, dimensions, loads on supporting structures, and anchor bolt locations.
 - 2. A list of all deviations from drawings and specifications.
 - 3. Descriptive literature, bulletins and/or catalogs of the equipment.
 - 4. Complete data on motors and gear reducers.
 - 5. Wiring diagrams and electrical schematics for all control equipment to be furnished.

1.06 WARRANTY

- A. All Enviro-Care equipment is covered against manufacturing defects in materials and workmanship during normal use and service for a period of one (1) year from date of start up as long as periodic maintenance procedures are followed and performed. Items specifically not covered by the warranty are consumable wear parts as identified in the O&M manual.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. FSM Screw Wash Press Model SPW200 shall be as supplied by Enviro-Care Company, or equal.

2.02 QUALITY ASSURANCE

- A. Equipment manufacturer shall be ISO 9001 certified.
- B. The FSM Screw Wash Press will be fully assembled and run tested to confirm fit and function of the screen. A certificate of the shop run test shall be supplied with the shipping documents.

- C. The FSM Screw Wash Press will be shipped to the site fully assembled, if possible, and dependent upon the height of the screen. Some ancillary components may be removed in order to prevent damage during shipment.

2.03 PERFORMANCE REQUIREMENTS

Conditions	Unit
Number of Wash Presses	One (1)
Influent Type	Municipal Screenings
Inlet Solids Capacity (CFH)	70
Inlet Length	700 mm (27.6 inches)
Volume Reduction	60 – 85%
Weight Reduction	60 – 85%
Discharged Material Dry Solids	>40%
Washed Screenings Fecal Reduction	90% (<20 mg/g BOD5)

2.04 UTILITY REQUIREMENTS/ENVIRONMENTAL CONDITIONS

Requirements/Locations	Unit
Spray Wash Water	11 gpm @ 20-40 psi
Motor HP	3.0
Power Supply (V/P/Hz)	480/3/60
Wash Press Installation Location (indoor/outdoor)	Outdoor
Wash Press NFPA Classification Requirement	Non-hazardous
Control Panel Location (indoor/outdoor)	Outdoor
Control Panel NFPA Classification Requirement	Non-hazardous

2.05 DESIGN REQUIREMENTS

A. General

1. The shafted screw type screenings wash press shall be a complete assembly consisting of a transition chute between the filter screen and compactor. The shafted screw wash press shall be designed to receive and wash screenings, then reduce the volume and water content by means of a pressing zone. The unit's washing and compacting performance will be as documented in Paragraph 2.03. After the compacting and dewatering process, the screenings shall be conveyed through the discharge transportation tube to the dumpster.
2. Screenings washers that use impellers and/or grinders to tear and shred fibrous screenings at the inlet to the compactor and therefore increase the amount of inert material returned to the plant shall not be allowed.
3. Refer to and comply with the performance requirements list in Paragraph 2.03.

4. The screw wash press shall be designed and built to withstand maximum possible forces exerted. All structural and functional parts shall be sized to prevent deflections or vibrations that may impair the screw wash press operations. All components of the screw wash press shall be made of type 304 stainless steel except the shaft screw which shall be from high strength steel with Hardox™ 400 flights throughout. Bearings, electrical devices, sprockets, motor and gear reducer shall be of the manufacturer's standard materials.
5. Shop Surface Preparation/Coating: All weldments shall be cleaned and passivated using a full dip passivation process to remove weld spatter, slag and discoloration. Bearings, electrical devices, drive and wiper chains and sprockets, motor and gear reducer shall be provided with the manufacturer's standard coating system. Screen weldments not full dipped passivated, using spray on cleaning solutions, passivating welds only or bead blasting shall not be allowed.
6. The screw wash press shall discharge screenings capable of passing the EPA Paint Filter Test as described in method 9095 of the EPA publication SW-486.

B. Screw Housing

1. The screw housing shall be constructed from 8mm (0.31 inch) thick type 304 stainless steel. The screw housing shall have support beams with U-profile, thickness of 5mm on each side. The screw housing shall be designed to support all required loads.
2. The interior of the screw housing shall incorporate with minimum of six (6) anti-rotation wear bars each fabricated from Hardox® 400 special high strength alloy steel with minimum Brinell Hardness of 400.
3. The bottom of the housing shall be provided with perforated drainage sections. Perforations shall be countersunk with maximum 6 mm in diameter. Units supplied with slotted or wedgewire drainage or compaction sections shall not be allowed. Perforations not countersunk shall not be allowed.
4. An inlet area length as specified in Paragraph 2.03, will receive incoming materials. A hopper constructed from type 304 stainless steel shall be provided by the manufacturer to direct solids to the inlet area of the screenings washer.

C. Shafted Screw

1. The screw will be constructed of high strength low alloy carbon steel and Hardox® 400 flights (minimum 400 Brinell), prime coated for protection during shipment. Screw OD shall be 200 mm (7.9 inches) with 12 mm (0.47 inch) thick flights welded to a minimum 88 mm (3.5 inch) diameter shaft. The final flight of the screw shall be supplied dual thickness 24 mm (0.94 inch) for increased wear

life. Screws that do not have the final flight from dual thickness (24 mm) and all flights from Hardox[®] 400 will not be allowed.

2. A replaceable nylon brush reinforced with a stainless steel backer shall be attached to the screw flights in the drainage area with stainless steel clips and hardware. To reduce wear on the brush the design shall be such that the screw shall not be allowed to rest in the press housing. The screw shall be fully supported and cantilevered off the thrust bearing.

D. Thrust Bearing

1. An independent thrust bearing housing shall be flanged mounted to the drive and flanged mounted to the press body. The independent thrust bearing assembly shall be protected from the environment and located in a separately sealed area located inside the press body. The flange portion of the thrust bearing shall have a grease fitting centrally located for ease of maintenance.
2. The thrust bearing shall fully support the screw and handle the load created during compaction and reversal of the screw. The thrust bearing shall utilize an SKF roller bearing complete with double lip grease seals and O-rings. The mounting flange shall have an O-ring seal mounted in a machined groove to seal the housing against the press body. Designs that utilize the thrust bearing inside the gear reducer housing will not be acceptable.

E. Drain Pan

1. A drain pan shall be mounted to the bottom of the screw housing along the full length of the housing. The pan shall be sloped to the drain and it shall be provided with a flushing water connection. Drain connection shall be minimum 4 inch plain ended pipe. Flush connection shall be minimum 1 inch NPT connection.
2. The pan shall be secured in place with hardware and allow for easy removal. Drain pan shall be constructed of minimum 14-gauge 304 stainless steel.

F. Wash Water Manifold

1. The screenings washer shall be provided with a minimum of two (2) separate connections for injecting wash water into the screenings.
2. Wash water spray nozzles shall be capable of utilizing the screened plant effluent without clogging or fouling.
3. The wash zone shall include a spray wash system to wash organic residue from the screenings. The wash zone spray will consist of one (1) spray header with two (2) wash water injection points at 3 o'clock and 9 o'clock, two (2) brass

spray nozzles, two (2) PRV's, one (1) ball valve and one (1) solenoid valve. The system will have an output of 11 gpm at 20-40 psi. The spray connection will be 1 inch NPT.

G. Inlet Hopper

1. The inlet hopper shall be designed to accept discharge screenings from the filter screen discharge chute. The hopper shall directly interface with the filter screen discharge with no solids or water bypass.
2. The inlet hopper shall be fabricated from minimum 12-gauge type 304 stainless steel.

H. Discharge Pipe

1. The discharge pipe shall be flanged and mounted to the press body by a minimum 12.5 inch diameter flange.
2. The discharge pipe shall be designed to transport the washed, dewatered, and compacted screenings to the discharge point without plugging.
3. The diameter of the discharge pipe shall increase in size to ease the transportation of the screenings.
4. For increased washing and compaction performance the discharge pipe will include a manually controlled back pressure device. The back pressure is manually generated by a stainless steel plate positioned by operating personnel. Access to the back pressure device is through a stainless steel access box fitted with a hinged bolt in place hatch. The access box is integral to the discharge pipe. Material of construction 304 stainless steel.
5. The discharge pipe elbow shall be fabricated from minimum 11-gauge type 304 stainless steel.
6. The discharge piping following the elbow shall be fabricated from minimum 12-gauge type 304 stainless steel.

I. Drive Assembly

1. The gear reducer shall be a flanged mounted directly to the thrust bearing housing and the compactor frame. Gear reducer shall be a helical gear type with hollow input shaft. The unit will be provided with a cast iron frame and be designed in accordance with AGMA recommendations for Class I service based on the horsepower required to operate the screen. Unit that do not bolt the gear reducer directly to the unit's frame will not be allowed.

2. The motor shall be TEFC, 3.0 HP, 460 Volt, 3 phase, 60 Hz. The motor shall be NEMA design code B and be direct coupled to the reducer.
3. Chain drives, belt drives, and hydraulic drives will not be accepted.

2.06 ELECTRICAL CONTROLS AND DEVICES

- A. In addition to the drive motor, the equipment supplier shall furnish all electrical items specifically called for in this specification section. The contractor shall supply all other electrical items, and interconnecting wiring of proper size, including all conduit and supports required to place the equipment into service.
 1. The following components will be included in the associated screen panel to provide proper operation of the equipment:
 - a. Branch circuit protection.
 - b. Compactor motor starter with overloads.
 - c. Hand-Off-Auto selector switches for the screw drive, and screenings spray wash water.
 - d. Motor load monitor for overload and over torque protection.
 - e. Hour meter for motor.
 - f. Run and fault indicating lights.
 - g. Run and alarm auxiliary contacts for use by the customer.
- B. Solenoid Valve: One (1) solenoid valve shall be provided to control flow to the spray wash assembly. The brass body valve shall be 120 Volt, single phase, 60 Hz with a NEMA 4X housing.

2.07 OPERATION, MONITORING, AND CONTROL

- A. Sequence of Operation
 1. **HAND OPERATION:** When HAND mode is selected, the spiral will run continuously. When spray wash HAND mode is selected, the spray wash will run continuously.
 2. **INTERMITTENT AUTOMATIC OPERATION:** The control panel will be equipped to control the wash cycle and screw movement. The wash cycle and the screw movement will be controlled independently through the use of timers and counters. The drive motor and spray wash will be controlled automatically when the selector switches are placed in the Auto position.
 - a. The press motor starts after an adjustable accumulated run time from the interlocked feeding equipment.
 - b. The wash water solenoid is open whenever the screw is in operation.
 - c. The washing solenoid closes and the press motor runs for an adjustable length of time, typically set at 30 seconds, to dewater and discharge the screenings.

3. EMERGENCY STOP: The unit can be deactivated at any time by pressing either the control panel mounted or screen mounted Emergency Stop push buttons.
4. FAULT CONDITIONS: Motor overload, high motor torque, or high motor current conditions will stop the motor and illuminate the fault light.

2.08 ANCHORAGE AND FASTENERS

- A. Anchor Bolts: All anchor bolts shall be a minimum of 1/2 inch diameter and made of type 304 stainless steel. The equipment supplier shall furnish all anchor bolts, nuts, and washers required for the equipment.
- B. Fasteners: All fasteners shall be type 304 stainless steel. The equipment supplier shall furnish all fasteners required for the assembly of the equipment.

2.09 SPARE PARTS

- A. The following minimum spare parts shall be provided for the screenings wash press -
 1. One (1) brush with mounting clips and hardware for screw.
- B. Manufacturer shall recommend any additional spare parts deemed necessary based on experience with the screen in similar applications.

PART 3 - EXECUTION

3.01 PREPARATION

- A. The mounting points TOC shall be level and parallel and of proper size.
- B. Contractor shall verify all dimension in the field to ensure compliance of equipment dimensions with the drawings.

3.02 INSTALLATION

- A. The installation is the responsibility of the Purchaser. Complete installation procedures are included in the O&M manual shipped with the unit.

3.03 START UP/TRAINING/FIELD QUALITY CONTROL

- A. The initial start-up of Enviro-Care equipment will be performed by Enviro-Care personnel and/or an authorized Enviro-Care representative. The Enviro-Care authorized representative will verify the proper operation and installation and provide training to the equipment operators, which shall be included with the screen start-up and training.

3.04 ADJUSTING AND CLEANING

- A. Information on minor periodic adjustments and cleaning is contained in the Operating and Maintenance Manual.

PART 4 - OPTIONAL ITEMS

4.01 BAGGER SYSTEM

- A. The end of the discharge pipe will be equipped with a type 304 stainless steel transition piece and continuous bagging device to capture the dewatered screenings. The bagging device shall be supplied with a replaceable magazine of continuous plastic hose 22 inch diameter by 260 feet long, 1.5 mm thick. (Recommended with Freeze Protection Option)

4.02 HEAT TRACING/FREEZE PROTECTION

- A. The wash press discharge pipe shall be fitted with 120V, single phase, 60 Hz flexible self-regulating heat tracing wire and closed-cell insulation to prevent freezing. A protective jacket will enclose insulated tube protecting the assembly.
- B. Wiring from the heat trace cable shall terminate in a factory mounted junction box for field connection by others.
- C. The control panel shall include integrated heat trace circuits rated for the appropriate wattage as determined by the manufacturer.
- D. GFCI circuit breaker added to control panel to power the heat tracing circuit.
- E. One (1) ambient temperature thermostat shall be provided to control power to the heat trace cable. The thermostat shall be 120 Volt, single phase, 60 Hz with a NEMA 4X housing. The temperature set point shall be selectable by an adjustable dial.

END OF SECTION 11380

Division 16 – Electrical

SECTION 16000 - ELECTRICAL WORK

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The Instruction for Bidders, General Conditions, Supplemental Conditions, Division 1 of the Specifications and all Contract Documents shall apply and govern the Work of all sections in this Division regardless of how the Work may be apportioned to various trades or subcontractors.
- B. The Contractor shall furnish all labor and materials to install a power and control system as shown on the Contract Drawings and specified herein.

1.02 GENERAL

- A. All materials and equipment installed shall be new and unused and shall be of the latest design of manufacturers regularly engaged in the manufacture of such products that conform with the requirements of the Contract Drawings and Specifications.
- B. These Specifications, the associated Drawings, and other Contract Documents have been prepared with intention of their yielding, through construction, electrical installations that are fully operable, safe, complete and in full compliance with the latest editions of the National Electrical Code, local codes and ordinances, and any other authority having jurisdiction over the Work. The omission of miscellaneous electrical items or accessories not specifically called for in these Contract Documents which would detract from this intention shall not relieve the Contractor of the responsibility of furnishing and installing these items and accessories.

1.03 SUBMITTALS

Shop drawings, clearly marked to show only items applicable to this specific contract, shall be submitted for review and shall include complete sizing of components and control schematics.

1.04 GUARANTEE

The Contractor shall refer to the article on guarantees and warranties in the general conditions and special conditions to determine the extent of his guarantee periods.

1.05 DIMENSION VERIFICATION AND DOCUMENTATION

Scale dimensions as shown on the Drawings shall be considered as approximate. The Contractor shall be responsible for making field verifications. Specific attention shall be given to the exact location of any underground lines installed under this Contract. These

lines shall be dimensioned to easily identifiable points on permanent building structures for location and elevation and these dimensions shall be entered and shown on the Record Drawings.

1.06 CODES AND STANDARDS

All electrical equipment and details of installations shall comply with the requirements of the latest editions of the National Electrical Code (NFPA-70), the National Electrical Safety Code (ANSI C2), OSHA and all applicable codes.

1.07 APPROVAL AND MARKING OF EQUIPMENT

Electrical devices and materials shall be listed and/or labeled by the Underwriters' Laboratories, Inc.

1.08 EQUIPMENT SPECIFIED ELSEWHERE

Certain items of control and other equipment are indicated on the electrical drawings for connection, but are specified in other sections of these Documents. Such items are not furnished as part of the electrical work.

1.09 PROTECTION OF ELECTRICAL EQUIPMENT

Electrical equipment shall be protected from the weather, especially from water dripping or splashing upon it, at all times during shipment, storage, and construction. Equipment shall not be stored outdoors even if its enclosure is rated as weatherproof, watertight, etc.

Where equipment is installed or stored in moist areas, such as unheated building, etc., it shall be provided with an acceptable means of preventing moisture damage such as a uniformly distributed source of heat to prevent condensation.

1.10 DEFECTIVE OR DAMAGED EQUIPMENT

- A. Should it be determined by the Contractor, Owner or Engineer that any equipment or material has been subjected to possible damage by water, it shall be thoroughly dried and put through a dielectric test as directed by the manufacturer, at the expense of the Contractor or shall be replaced by the Contractor without change in contract price. Any equipment found to be marginal or that fails to meet manufacturer's standards shall be replaced at no additional charge to the Owner or Engineer.
- B. Any equipment damaged during shipment, while stored, or during construction shall be replaced at the Contractor's expense. Minor scratches on equipment cabinets, etc., may be repaired on site. Any current carrying parts, switch blades, operators, coils, contacts, etc., which are damaged, shall be replaced at no cost to the Owner or Engineer.

1.11 PERMITS AND APPROVALS

- A. The Contractor shall obtain all permits necessary. The Contractor shall furnish inspection by an agency licensed or otherwise qualified to perform electrical inspections in the Commonwealth of Kentucky.
- B. The Contractor shall notify the electrical inspector, in writing, immediately upon the start of the Work and a copy of the notice shall be sent to the Engineer.
- C. All costs incidental to the electrical inspection shall be borne by the Contractor.
- D. The Contractor shall furnish certificates of final approval by the electrical inspector and final payment will be withheld until he has presented the Engineer with the aforementioned certificate of approval.

1.12 CIRCUIT LOADS

The Contractor shall verify the total load to be placed on the circuits as well as voltage, phase, frequency and connections required for equipment before rough-in, and if they differ from the Drawings and Specifications, he shall contact the Engineer immediately for further instructions before the Work commences.

1.13 ELECTRICAL SERVICE

- A. The Contractor shall obtain and install a complete electrical service with new service equipment. The new equipment connections and conduit shall be sized for the application and the service shall meet the requirements of the National Electrical Code (NEC) and the local utility company.
- B. The Contractor shall make all necessary arrangements for transfer of power by the local utility company.

PART 2 - PRODUCTS

2.01 CONDUIT

- A. No conduit smaller than 3/4-inch shall be used.
- B. Rigid Conduit: Rigid conduit shall be standard weight, mild steel pipe. The conduit shall receive a protective zinc coating both inside and outside by means of hot-dip galvanizing. Threads shall not have any coating which will reduce the conductivity of the joint. Coupling, bends, elbows, fittings, etc., shall be subject to the same requirements as for the straight lengths. All conduit and fittings shall be UL approved. Rigid conduit shall be delivered with plastic protectors on the threads.
- C. Electrical Metallic Tubing (EMT): No EMT will be allowed on this project.

- D. Liquid tight flexible metallic conduit shall be constructed of flexible or spirally wound galvanized steel enclosed in light gray colored PVC outer jacket. Liquid tight flexible metallic conduit shall be equal to American Brass "Sealtite" Type UA. Connectors shall be equal to Midwest Type LT.
- E. Plastic conduit shall be schedule 40, PVC, rated for use with 90 degrees celsius conductors and for use in direct sunlight, with chemical weld joints. This Contractor shall provide all fittings, adapters, etc., required for a complete installation as shown on the Drawings.

2.02 WIRE AND CABLE

- A. All conductors shall be insulated so that they are rated at 600 volts, (except float switch cable may be 300 volt rated).
- B. No conductors smaller than AWG No. 12 shall be used except for signal or control systems, or where otherwise indicated.
- C. All conductors shall be soft drawn, 98 percent conductivity copper conforming to the latest ASTM Specifications and the requirements of the National Electrical Code.
- D. Single conductors shall be insulated with THW insulation and all conduits shown on the Drawings are sized accordingly. At the Contractor's option, THWN insulation may be substituted.
- E. Cable used for the pump motor power and for the float switches is to be provided with that device. Refer to the pump and float switch Specification section.

2.03 CONTROL PANELS

- A. The control panels shall have an inside dimension as required to contain the control equipment as shown in the schematic on the Drawings with spacing as required by the National Electrical Code. Panel construction shall be NEMA 4X (watertight, dust-tight, and corrosion resistant) either cast aluminum, stainless steel or fiberglass polyester. The panel shall have provisions for padlocking in the closed position. The completed panel shall have two (2) hinged doors. The outside door shall be fully gasketed and sealed to NEMA 4X standards and shall be the one that has the padlocking provisions. The inside hinged door shall be mounted in front of the starters, breakers, relays, etc., shall be latched with captive screw driver operated, 1/4 turn latches and shall be cut out to allow the mounting switches, pilot lights, circuit breakers, etc. The inner door shall be fitted with a coin proof, hand tool operated, defeatable electrical interlock that, when not defeated, will disconnect control power to the unit when the door is opened.
- B. The panel shall contain an electric heater of sufficient size to provide condensation protection. The heater shall be thermostatically controlled and shall be a sealed unit. The accessible portions of the heater shall remain cool enough to prevent injury to personnel.

See the power and control schematic on the Drawings for connections. Heaters and thermostats shall be as manufactured by Chromalox, Type SCB, or equal.

- C. Boxes used for mounting equipment or devices outside the control cabinet shall be cast type with threaded hubs and gasketed covers, NEMA 4X construction.

2.04 GROUNDING

- A. The resistance value of the main grounding conductor measured between the main switchgear and a good earth ground shall not exceed five (5) ohms.
- B. Ground Rods: Ground Rods shall be the copper clad steel type and shall be a minimum of 10 feet in length, 3/4-inch in diameter. Ground rods shall be equal to those as manufactured by Copperweld Steel Company.
- C. Grounding electrode conductors shall be bare copper. Equipment grounding conductor shall be copper, THW insulated, green (or green with yellow tracer) in color, and rated at 600 volts.
- D. Ground clamps for use on metallic pipes shall be of copper, brass or silicon bronze with a rigid metal base providing good contact by proper seating on the pipe. Strap type clamps shall not be used.

2.05 CONTROL PANEL COMPONENTS

- A. Duplex Receptacle: Duplex receptacle shall be NEMA 5-20R, 120-volt, 20 ampere, equal to Pass and Seymour Catalog No. 2091-SHG, GFI.
- B. Circuit Breakers: All circuit breakers shall be molded case breakers and of the size as shown on the Drawings. Multiple-pole breakers shall be factory assembled in one molded case. Each circuit breaker shall have a permanent trip unit containing individual thermal and magnetic trip elements in each pole. Single-pole breakers and circuit breakers for motors shall be equal to Square-D, Type FAL. The main breaker shall be equal to Square-D, Type FHL.
- C. Pushbuttons: Pushbutton controls shall be non-illuminated, momentary contact (unless otherwise shown in the schematics), oil tight, fully guarded Square D, Class 9001, or equal. Pushbuttons shall have a means of installing a metal plate to designate the function.
- D. Selector Switches: Selector switch operators shall be non-illuminated, oil tight, number of positions as shown in the schematics, for use as maintained contact as shown, Square D, Class 9001, Type K or equal.
- E. Pilot Lights: Pilot lights shall be rated at the indicated control voltage, press-to-test, incandescent, with lens color as shown on the schematics. Pilot lights shall be Square D,

Class 9001, Type K or equal.

- F. Alternator: The alternator shall alternate pumps on successive pumping and provide for energizing the second pump as back-up or lag pump. The alternator shall be electric, NEMA rated A600 equal to Furnas Class 47.
- G. Contact Blocks: Switch contact blocks shall be gangable, reversible, completely compatible with the necessary operator, double-break silver contacts with a flexible, movable contact blade providing a scrubbing action with positive wipe. Contacts shall be rated at the indicated control voltage, 10 amperes continuous, Square-D Class 9001, Type K or equal.
- H. Control Relays: Auxiliary control relays shall be magnetic, general purpose, "ice cube", type with 2-pole, double throw contacts rated at 5 amperes (minimum), 120 volts (minimum). Coils shall be rated to operate at the indicated control voltage. Relays shall be equal to Square-D, Class 8501, Type K. Provide proper bases, mounting track, etc. for a complete installation. Bases shall be equal to Square-D, Type NR and all relays shall be fitted with a retainer clip. Relays shall have a manual operator and pilot light.
- I. Time Relays: Time relays shall be off-delay or on-delay as shown on the Drawings, shall be field adjustable between the limits indicated in the schematics, solid state type and shall operate at the indicated control voltage. Where indicated, timed relays shall have instantaneous operating contacts as well as timed contacts.
- J. Legend Plates: Legend plates shall be of the metal ring type which installs around the control device under the ring unit. Lettering shall be factory finished to denote the function of each control device. Where protective caps are used, legend plates shall be rectangular, separately mounted, factory finish type.
- K. Magnetic Starters: All magnetic starters and contactors shall be steel mounted, front wired with all terminals accessible for wiring directly from the front. Movable contact blocks shall depend on gravity only and not the use of springs for operation to the open position. Starter and contactor NEMA standard sizes and other ratings shall be as indicated. In no case shall any starter or contactor be smaller than NEMA size 0. All contacts shall be double break, solid silver cadmium oxide alloy, or equal. Bare copper or silver flashed copper contacts which require periodic filling or cleaning maintenance will not be permitted. Operating coils shall be pressure molded and so designed that, if accidentally connected to excessive voltage, they will not expand, bubble or melt. When a coil fails under any condition, the starter shall open and shall not "freeze" in the closed (on) position. Coils shall be replaceable from the front of the starter without having to remove the starter from the panel or enclosure.
- L. Overload Relays: Overload relays shall be installed in all unground lines and shall be eutectic type, manually resettable. Operation shall be trip-free in that blocking the reset mechanism in the reset position will not prevent the operation of the relay if the motor is overloaded. Depressing the reset button or mechanism shall not open the starter contacts.

Where overload relays are indicated with normally open extra electrical interlock contacts for alarm purposes, they shall mount in the same general location and manner as the standard normally closed overload relay contacts and shall utilize the same heater elements as the overload relay itself. Thermal units shall be of one piece construction and interchangeable within the range of the starter unit. The starter shall be inoperative if the thermal unit is not in place. All overload relays shall be sized from actual motor nameplate data taking into account the temperature ratings, starting characteristics, and current ratings of the particular motor it is protecting. Temperature ratings of the motors in relation to the overload relay ratings will be affected by the ambient temperature at the motor location in relation to the ambient temperature at the starter. These relationships shall be taken into account when sizing the overload relay thermal units following the recommendations of the particular starter manufacturer. In no case shall the relay and its thermal unit be sized higher than the percentage values given in Article 430-C of the National Electrical Code.

- M. Control Voltage: Control circuitry voltage shall be 120 volts and all control devices shall be rated to operate at this voltage. Certain control devices may be provided under other Divisions of the Specifications, but wired under this Section. The Contractor shall verify that all devices falling into this category are rated for the specified control voltage prior to installation.
- N. Elapsed Time Meter: The elapsed time meter shall be equipped with 120-volt, 60 Hertz, permanent magnet motor that are plus or minus 50 milli-seconds per start or stop and 100 percent when running at normal frequency. The counter wheels shall be gear and pinion type, 1-inch in diameter and have easy-to-read numbers. The elapsed time meter shall be non-resettable, capable of registering elapsed time up to 99,999.9 hours as manufactured by Cramer, or equal.
- O. Blocks: Terminal blocks and power distribution blocks shall be provided as required. Each block shall be sized appropriately for the size and number of wires being terminated. Blocks shall be as manufactured by Square-D, Class 9080, or equal.
- P. Surge Suppressors: Surge suppressors shall be installed parallel to all motor starters. They shall provide protection against lightning and other high voltage surges on an AC line-to-ground system. The protectors shall be Square-D, Class 6673, or equal.

2.06 SAFETY SWITCHES

Safety switches shall be heavy-duty, load break type with a quick-make, quick-break, switch mechanism, in a NEMA 4X enclosure. Ampere rating and number of poles shall be as noted on the Drawings. Padlocking capability shall be provided for locking the switch either in the closed (on) position or open (off) position. Fuse clips shall be rejection type. Switches shall be provided with a cover-blade interlock so that the cover cannot be opened when the switch blades are closed, nor can the switch blades be closed with the cover open. Interlock bypassing devices shall be included for use by authorized personnel. Switches shall be Square-D, Class 3110, or equal.

2.07 FUSES

The Contractor shall provide fuses as called for on the Drawings. Where the fuse size is not indicated, the Contractor shall size the fuse for actual load installed. Where the fuse size is indicated on the Drawings, the Contractor shall verify the actual load installed and provide fusing accordingly. Unless otherwise indicated on the Drawings, all fuses shall be non-renewable, current limiting, dual element, time-lag type. The fuses shall have an interrupting capacity of at least 100,000 amperes RMS symmetrical. Fuses shall be as manufactured by Bussman or equal.

2.08 SERVICE POLE

The service pole(s) (where shown) shall be southern pine, pressure creosote treated, roofed and galled before treatment and of the length and class as shown on the Drawings. Pole hardware shall be galvanized steel.

2.09 ALARM LIGHT

The Contractor shall provide an alarm light mounted on top of the control panel. The light shall be flashing strobe with lexan dome, 120-volt, red lens. The light shall be Edwards "Adaptabeacon", Catalog No. 94 or equal.

2.10 FLOAT SWITCHES

Float level switches shall be of the tank float switch type and shall produce a contact closure upon rising water level. The float shall be polypropylene, minimum 2-7/8 inch diameter, with mercury tilt type normally open contacts. Contacts shall be rated at 10 amp, 120-volt. Switches shall be complete with Type SO cable, 316 stainless steel clamp, bracket, U-bolts, and 1 inch NPT pipe mounted inside the wet well. Float switches shall be Conery, Model 2900, or equal.

2.11 SPARE PARTS

A. Spare parts for this project shall include the following:

<u>Item</u>	<u>Quantity</u>
Pushbuttons	1
Selector Switches (3-position)	1
Pilot Lights	2

Control Relay	1
Time Relay	1
Magnetic Starter Nema Size (per actual load)	1
Elapsed Time Meter	1
Surge Suppressor	1
Float Switch	1

- B. For consumable parts such as light bulbs and fuses, 100 percent spare bulbs and fuses shall be provided.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Excavation, Backfilling and Grading:

1. The Contractor shall perform all earth and rock excavation, backfilling and grading required for this part of the work. Rock excavation shall be made to a depth of 4 inches below pipe and filled to subgrade with dense graded aggregate limestone. After the bid is submitted there will be no additional funds forthcoming for excavation work on this project. All excavation shall be bid as unclassified.
2. Trenches shall be maintained free of water until backfilling is completed.
3. Backfilling material in earth excavation shall be clean earth to a line at least 12 inches above the top of the conduit. From this line upward, rock not more than 6 inches in diameter may be used provided it is spaced at least 12 inches apart. Filling between rock shall be of clean earth, thoroughly tamped in 6 inch layers to the finished grade. All surplus rock and earth shall be removed from the site as directed by the Engineer.
4. Depth of bury for all conduit shall be a minimum of 24 inches below finished grade.

B. Conduit:

1. Rigid steel conduit shall be used for emergence from underground, or from below slab-on-grade and where exposed. Schedule 40 PVC shall be used underground. Adapters shall be used and rigid steel extended above grade from PVC that is installed underground or below slab-on-grade. PVC shall be concrete encased where it passes under roadways. PVC shall not be used where exposed on the

exterior nor where exposed to direct sunlight. Conduit shall be installed so as to insure against trouble from the collection of trapped condensation. This Contractor shall plan his work so that runs of conduit miss equipment by other trades. Conduit bushing shall have insulating material which has been permanently fastened to the fittings. Bushings for conduit 1-1/2 inches trade size and larger shall be complete with grounding lug and shall be bonded to the box by means of bare copper wire. All field bends shall be made with standard tools and bending equipment manufactured especially for this purpose. Bends in metallic conduit shall be made while cold and in no case shall the conduits be heated. Conduits shall not be bent through more than 90 degrees. Size of conduits shall not be less than that required by the National Electrical Code. The Contractor shall install larger size conduits than detailed where there is more than 100 feet of unbroken run or where the total of the angles through which the conduit has been bent during a single run exceeds 270 degrees.

2. All conduit installed on concrete surfaces shall be anchored with spacer type conduit clamps preventing contact between the conduit and the concrete surface. Conduits penetrating walls shall be grouted in place to form a seal.
3. All conduit shall be run continuous between devices with a minimum number of bends. Back-to-back 90 degree bends (180 degree change of direction) will not be acceptable. During construction, all new conduits shall be kept dry and free of moisture and debris. Before the wire is pulled in, all conduits shall be swabbed to clear all moisture and debris which may have unavoidably accumulated.

C. Wire and Cable:

1. Direct Burial Cable: No cable buried directly in the earth, not in raceway will be allowed on this project.
2. Wire shall not be installed until all work of any nature that may cause injury to the wire is completed. Mechanical means shall not be used in pulling in wires No. 8 or smaller. Approved wire pulling lubricant shall be used as required to prevent insulation damage and overstressing of the wire while pulling through conduit. In no case shall conductors be greased or coated with any substance injurious to the conductor insulation or sheath.
3. All wires connected to terminal boards, terminal blocks, or to other similar terminals shall terminate by means of pressure terminals. Where terminal boards, terminal blocks, etc. are designed and manufactured to accept bare wire and have a pressure plate on each side of the wire, no pressure terminals on the wire will be required. Where the wire would have to encircle the holding screw to make a proper connection, the wire terminals are required.
4. Where the wire is shown larger than that required for the load, it is done so for voltage drop or other purposes and must be installed as shown. Where the wire is stranded, the removal of strands in order to install the wire into a lug provided on any equipment will not be permitted. A larger lug shall be installed which will accept the wire size indicated.
5. Each wire shall be labeled at both termination points with an adhesive type label as manufactured by Panduit Corporation, or equal. All wiring shall be neatly bundled

and supported.

6. Insulation on ungrounded conductors larger than AWG #10 and on grounded (neutral) and grounding (equipment ground) conductors larger than AWG #6 may be black with color coding accomplished with the use of colored plastic tape. Tape shall be installed on the conductors wherever they are visible and shall be wrapped at least three (3) turns around the conductor.
7. All wiring on this project, except control wiring, shall be black for ungrounded conductors, white for neutral conductors.

D. Grounding:

1. Ground rods shall be driven vertically into the earth to at least one foot below finished grade. Where rock is encountered at a depth of less than four (4) feet, rods shall be buried in a trench at not less than two feet below finished grade.
2. Connections to ground rods and all other ground connections below grade shall have a minimum mechanical contact surface area between the conductor and the ground rod of not less than three square inches. All connections made below finished grade shall be exothermic. Installation of grounding conductors shall be such that they are not exposed to physical damage. All connections shall be firm and tight.
3. All metal electrical equipment cabinets shall be securely bonded to a grounding conductor running through any conduit terminating at the cabinet or enclosure by use of a grounding lug bushing and jumper wire to the enclosure wall. Control cabinets shall be provided with an equipment ground bus (including lugs or screw terminals) securely bonded to the enclosure. Junction boxes and other enclosures shall utilize an equipment ground bus or lug as required to securely bond the equipment grounding conductor to the enclosure. The grounding conductor shall be connected with pressure connectors at the main switchgear to the main grounding system. Where screw terminals or set screw lugs are used, sufficient lugs shall be provided such that not more than one conductor is installed into each lug or terminal.
4. No flexible conduit shall serve as a grounding conductor.
5. The grounding conductor serving motor circuitry shall be connected inside the entrance compartment to the motor frame with a bolted solderless pressure connector. Bolts, nuts, washers and other assorted hardware shall be bronze, cadmium plated steel, or other corrosion resistant material. The motor ground connection shall be to the motor frame and independent of the mounting bolts or sliding base.
6. Where lightning arresters are furnished and installed either separately or with equipment and the grounding connections are not inherently provided, a suitable, separate, grounding conductor shall connect the lightning arrester with a separate ground rod. This rod shall be interconnected with any adjacent grounding system.

- E. Overload and Overcurrent Protection: Each set of overcurrent and overload protective devices shall be provided to correspond to the actual motor nameplate data. Before

motors are energized, the Contractor shall submit to the Engineer two (2) copies of a listing of each motor, motor nameplate data (voltage/phase/hertz/full load amperes/locked rotor amperes/motor code letter/service factor), and proposed motor overload device(s) with trip setting(s).

3.02 ELECTRICAL FIELD ACCEPTANCE TESTS

- A. General: After the electrical installation is complete, tests shall be made to demonstrate that the entire system is in proper working order and in accordance with the Drawings and Specifications. The test outlined herein shall be in addition to, and not substitution for, the tests of the individual items at the manufacturer's plant. Insulation and ground resistance tests shall be made before operating tests.
- B. Defective Equipment: All wiring and equipment found defective or failing to meet the specified requirements shall be replaced by the Contractor without charge, unless written permission for repair is given by the Engineer.
- C. Operating Tests:
 - 1. Switches, Circuit Breakers, Control Devices: All switches, circuit breakers, and control devices shall be operated to show correct and satisfactory operation.
 - 2. Controls: Controls circuits shall be fully operated with the power circuits to the motors de-energized to assure proper sequence and operation before the system is energized.
 - 3. Connections at motors, and motor control equipment shall not be made up permanently until correct phase rotation of all the equipment has been determined. These connections shall be installed and insulated temporarily, if necessary, while determining proper rotation. Permanent connections shall be made after proper rotation has been established and subsequent to the completion of the insulation resistance and dielectric tests.
 - 4. After installation, the Contractor shall megger the windings of all motors. They shall be tested in accordance with and meet the requirements of IEEE Standard No. 43-1974, Recommended Practice for Testing Insulation Resistance of Rotating Machinery.
 - 5. Each motor and its associated equipment shall be operated as nearly as possible under normal operating conditions for as long as reasonable and for a length of time sufficient to demonstrate correct alignment, temperature rise, speed, and satisfactory operation. The motors shall be loaded to full capacity or as near thereto as possible.
- D. Insulation Resistance Tests: Each complete feeder with everything but power supply and power-consuming equipment, connected thereto, shall be tested and shall have an insulation resistance between conductors, between each conductor and ground, and between each conductor and any metallic conduit enclosing of not less than 1,000,000 ohms unless otherwise accepted by the Engineer.

- E. Ground Resistance Tests: The Contractor shall test each entire grounding system for continuity of connections and for resistance. The ground resistance of conduits, equipment cases, and supporting frames shall not vary appreciably from that of the system as a whole and shall not exceed 5 ohms.
- F. Witness: The Engineer shall be notified at least seven (7) calendar days in advance of each of the tests covered in this Section of the Specifications so that he may arrange to witness the tests.
- G. Test Records: A record of all tests shall be delivered to the Engineer before final acceptance will be forthcoming.

3.03 OPERATION AND MAINTENANCE (O&M) MANUAL

- A. At the completion of the Contract, the Contractor shall prepare two (2) copies of a manual, which shall include the following:
 - 1. A complete parts list for each piece of equipment giving the model number and manufacturer of each item as it is listed in the original manufacturer's catalog.
 - 2. Operations and maintenance instructions prepared by the equipment manufacturer.
 - 3. An operating section in which step-by-step procedures are given. This Section shall contain drawings and diagrams as required for clarification and instruction.
 - 4. Each manual shall be installed in a properly sized, hardback, loose-leaf filler.

END SECTION 16000

EXHIBIT 8

ANDY BESHEAR
GOVERNOR



REBECCA W. GOODMAN
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

ANTHONY R. HATTON
COMMISSIONER

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601

June 21, 2021

Mr. Stephen Whitaker
McCreary County Water District
PO Box 488
Whitley City, KY 42653

Re: Fibrotex Sanitary Sewer PS & FM
McCreary County, Kentucky
McCreary Co WWTP
Activity ID #: 3089, APE20200002
Receiving Treatment Plant KPDES #: KY0097837

Dear Mr. Whitaker:

We have reviewed the plans and specifications for the above referenced project. The plans include the construction of approximately 11 feet of 12-inch PVC, 180 feet of 8-inch PVC sewer line; a duplex pump station with pumps capable of 500 GPM at 139 feet TDH and 6,410 feet of 8-inch PVC force main. 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 we can be of any further assistance or should you wish to discuss this correspondence, please do not hesitate to contact Mr. Mohammed Mohiuddin at 502-782-7020.

Sincerely,

A handwritten signature in black ink, appearing to read "T. Humphries".

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

TH / MM

Enclosures

C: McCreary County Health Department
Eclipse Engineers PLLC
Division of Plumbing

Sewer Line Construction
McCreary Co WWTP
Facility Requirements

Activity ID No.:APE20200002

Page 1 of 6

GACT0000000006 (Fibrotex Sanitary Sewer Pump Station & Force main) 11 feet of 12-inch PVC, 180 feet of 8-inch PVC Sewerline; a duplex Pump Station with pumps at 500 GPM with 139 feet TDH and 6,410 feet of 8-inch PVC Force main:

Submittal/Action Requirements:

- | Condition No. | Condition |
|---------------|--|
| S-1 | When this project is completed, the applicant shall: submit written certification: Due 30 calendar days after Completion of Construction to the Division of Water that the facilities have been constructed and tested in accordance with the approved plans and specifications and the approval conditions: Such certification shall be signed by a registered professional engineer. Failure to certify may result in penalty assessment and/or future approvals being withheld. [401 KAR 5:005 Section 24(2)] |

Narrative Requirements:

- | Condition No. | Condition |
|---------------|---|
| T-1 | The plans and specifications submitted for the project are approved by the Department of Environmental Protection as to sanitary features, subject to the requirements contained within the permit. [401 KAR 5:005 Section 24(3)] |
| T-2 | Authority to construct these sewers is hereby granted. This approval is issued under the provisions of KRS Chapter 224.10-100 (19) regulations promulgated pursuant thereto. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any permits or licenses required by this cabinet and other state, federal, and local agencies. [401 KAR 5:005 Section 24(3)(c)2] |
| T-3 | A permit to construct a facility shall be effective and valid for twenty-four (24) months upon issuance unless otherwise conditioned. If construction has not commenced within twenty-four (24) months following a permit's issuance, a new permit shall be obtained before construction may begin. [401 KAR 5:005 Section 24(1)] |
| T-4 | The permit is issued to the applicant, and the permittee shall remain the responsible party for compliance with all applicable statutes and administrative regulations until a notarized applicable change in ownership certification is submitted and the transfer of ownership is acknowledged by the cabinet. [401 KAR 5:005 Section 28(1)] |
| T-5 | The issuance of a permit by the cabinet does not convey any property rights of any kind or any exclusive privilege. [401 KAR 5:005 Section 24(5)] |
| T-6 | There shall be no deviations from the plans and specifications submitted with the application or the conditions specified, unless authorized in writing by the cabinet. [401 KAR 5:005 Section 24(3)(b)1] |

Sewer Line Construction
McCreary Co WWTP
Facility Requirements

Activity ID No.:APE20200002

Page 2 of 6

GACT0000000006 (Fibrotex Sanitary Sewer Pump Station & Force main) 11 feet of 12-inch PVC, 180 feet of 8-inch PVC Sewerline; a duplex Pump Station with pumps at 500 GPM with 139 feet TDH and 6,410 feet of 8-inch PVC Force main:

Narrative Requirements:

Condition No.	Condition
T-7	<p>For subfluvial pipe crossings, a floodplain construction permit will not be required pursuant to KRS 151.250, if the following requirements of 401 KAR 4:050 Section 2 are met:</p> <ol style="list-style-type: none">1) During the construction of the crossing, no material may be placed in the stream or in the flood plain of the stream to form construction pads, coffer dams, access roads, etc., unless prior approval has been obtained from the cabinet.2) The trench shall be backfilled as closely as possible to the original contour. All excess material from construction of the trench shall be disposed of outside of the flood plain, unless the applicant has received prior approval from the cabinet to fill within the flood plain.3) For subfluvial crossings of erodible channels, there shall be at least thirty (30) inches of clear cover above the top of the pipe or conduit at all points.4) For subfluvial crossings of nonerodible channels, there shall be at least six (6) inches of clear cover above the top of the pipe or conduit at all points, and the pipe or conduit shall be encased on all sides by at least six (6) inches of concrete.5) The weight of a pipe and its contents during normal operating conditions at all points must exceed that of an equal volume of water, or the applicant must provide the division with sufficient information to show that the pipe and joints have sufficient strength. <p>Contact the Floodplain Management Section of the Surface Water Permits Branch at (502) 564-3410 with any question on these requirements. [KRS 151.250 & 401 KAR 4:060]</p>
T-8	<p>If any portion of the sewer project will be constructed in or along a stream or wetland, contact the Water Quality Certification Section, located within the Water Quality Branch, at 502-564-3410, to determine if a 401 certification will be required. [KRS 224.16-050]</p>
T-9	<p>Facilities shall be designed and constructed in accordance with the "Recommended Standards for Wastewater Facilities" of the Great Lakes-Upper Mississippi River Board of State Public Health and Environmental Managers, commonly referred to as "Ten States' Standards", 2004 edition. [401 KAR 5:005 Section 7(1)(a)]</p>
T-10	<p>Gravity sewer lines and force mains shall be designed and constructed to give mean velocities, when flowing full, of not less than two (2) feet per second. Velocity calculations shall incorporate roughness coefficients pursuant to 401 KAR 5:005 Section 8(8). [401 KAR 5:005 Section 8(8)]</p>
T-11	<p>Sewer line pipe material, joints, fittings, and installation shall conform to the latest ASTM specifications. [Ten States (WW) 33.7-33.9]</p>
T-12	<p>Gravity sewer lines and force mains shall have a minimum of thirty (30) inches of cover or provide comparable protection. [401 KAR 5:005 Section 8(9)]</p>

Sewer Line Construction

McCreary Co WWTP
Facility Requirements

Activity ID No.:APE20200002

Page 3 of 6

GACT0000000006 (Fibrotex Sanitary Sewer Pump Station & Force main) 11 feet of 12-inch PVC, 180 feet of 8-inch PVC Sewerline; a duplex Pump Station with pumps at 500 GPM with 139 feet TDH and 6,410 feet of 8-inch PVC Force main:

Narrative Requirements:

Condition No.	Condition
T-13	Sewer lines crossing water mains shall be laid to provide a vertical distance of eighteen (18) inches between the outside of the water main and the outside of the sewer line. This shall be the case where the water main is either above or below the sewer line. The crossing shall be arranged so that the sewer line joints are equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer line to prevent damage to the water main. [Ten States (WW) 38.32]
T-14	Sewer lines shall be laid at least ten (10) feet horizontally from any existing or proposed water main. The distance shall be measured from edge to edge. [Ten States (WW) 38.31]
T-15	If gravity sewer lines and force mains are to be constructed in fill areas, the fill areas shall be compacted to ninety-five (95) percent density as determined by the Standard Proctor Density test or to a minimum of ninety (90) percent density as determined by the Modified Proctor Density test prior to the installation of the sewer lines. [401 KAR 5:005 Section 8(10)]
T-16	An audible and visible alarm shall be provided at any proposed wastewater pump station. [Ten States (WW) 46]
T-17	All proposed pump station wetwells shall be sized such that, based on the average flow, the time to fill the wetwell from the pump-off elevation to the pump-on elevation shall not exceed thirty (30) minutes. [401 KAR 5:005 Section 8(16)]
T-18	All pump stations shall provide a minimum of two (2) hours of detention time, based on the average design flow, above the high level alarm elevation or provide an alternate source of power with wetwell storage providing sufficient time for the alternate power source to be activated. [401 KAR 5:005 Section 8(18)]

Sewer Line Construction
McCreary Co WWTP
Facility Requirements

Activity ID No.:APE20200002

PORT0000000044 (Fibrotex Sanitary Sewer PS & FM) 11 feet of 12-inch PVC, 180 feet of 8-inch PVC Sewerline:

Narrative Requirements:

Condition No.	Condition
T-1	The integrity of a new gravity sewer line shall be verified by either the infiltration-exfiltration or low pressure air testing method, and a deflection test shall be performed, if using flexible pipe. The deflection test shall be performed after the final backfill has been in place for at least thirty (30) days with no pipe exceeding a deflection of five (5) percent. Additionally, each new manhole shall be tested for water tightness. [401 KAR 5:005 Section 8(6)(a)]
T-2	The entrance of groundwater into or loss of waste from a new gravity sewer line shall be limited to two-hundred (200) gpd per inch of diameter per mile of the gravity sewer line. This limitation includes manholes, gravity sewer lines, and appurtenances. [401 KAR 5:005 Section 8(5)]

Sewer Line Construction
McCreary Co WWTP
Facility Requirements

Activity ID No.:APE20200002

PORT0000000045 (Fibrotex Sanitary Sewer PS & FMD) a duplex Pump Station with pumps at 500 GPM with 139 feet TDH:

Narrative Requirements:

Condition No.	Condition
T-1	Pumps and force mains handling raw wastewater shall be capable of passing spheres of at least three (3) inches in diameter. Pump suction and discharge openings, as well as sewer force main pipe, shall be a minimum of four (4) inches in diameter. The above requirements do not apply to grinder pump stations or force mains directly connected to grinder pump stations. [Ten States (WW) 42.33, 49.1]

Sewer Line Construction
McCreary Co WWTP
Facility Requirements

Activity ID No.:APE20200002

PORT0000000046 (Fibrotex Sanitary Sewer PS & FMD) 6,410 feet of 8-inch PVC Force main:

Narrative Requirements:

Condition No.	Condition
T-1	The integrity of any proposed force main shall be verified by leakage tests. The specifications shall include testing methods and leakage limits. [401 KAR 5:005 Section 8(6)(b)]
T-2	Each high point in the sewer force main shall have an automatic air release valve. [401 KAR 5:005 Section 8(19)]
T-3	Adequate thrust blocks shall be provided at all significant bends in any proposed sewer force main, in order to prevent movement of the main. [Ten States (WW) 49.4]

EXHIBIT 9



COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET

transportation.ky.gov

Andy Beshear
GOVERNOR

Jim Gray
SECRETARY

McCreary County Water Department
456 N Hwy 27
Whitley City, KY 42653

Subject: McCreary County
KY 92
MP 074-0092-15.7
Permit: 08-2021-00384

Dear Sir:

The attached is your copy of the approved encroachment permit application. One copy is to be submitted to your contractor. This permit is to remain on the project until the permitted work is complete.

You are to shape and seed any disturbed areas on the State's right of way. All work and materials are to comply with the Department's Standard Specification for Road and Bridge Construction- 2019 Edition. Signs, barricades, lights, etc. if required, are to be installed in accordance with the Manual on Uniform Traffic Control Devices.

Please notify this office when permitted work begins. When work has been completed, the Notice of Completion of Encroachment Permit Work must be completed and returned so an inspection can be made by personnel from this office. If all work has been completed satisfactorily, your indemnity will then be released.

Yours truly,

Adam Dixon

Adam Dixon, P.E.
Transportation Engineer I
District 8- Somerset

12/20/2021
Date

JJ/cm

NOTICE OF COMPLETION OF ENCROACHMENT PERMIT WORK

PERMITTEE

Name: McCreary County Water District
Contact Person:
Address: 456 N Hwy 27
City: Whitley City
State: Kentucky
Zip: 42653
Telephone: (606) 451-0959

PROJECT IDENTIFICATION

Permit Number: 08-2021-00384

I wish to notify the Department of Highways that the above mentioned permit work and any necessary right-of-way restoration have been completed and are ready for final inspection.

Permittee

Please return this form to the address below when work is completed and ready for final inspection.

Please Return to: Permit Engineer
Department of Highways, District 8 Office
1660 South US 27
Somerset, Kentucky 42502
(606) 677-4017
www.transportation.ky.gov/

LOCATION(S)			
Description	County - Route	Latitude	Longitude
Bore	McCreary - KY 92	36.697782	-84.474397

Kentucky Transportation Cabinet – District 8
Permit No. 08-2021-00384

Applicant to bore for 8 inch water line at mile point 15.7 on KY 92 in McCreary County as shown on attached Typical Highway Boring Crossing Detail and encroachment terms. A 16 inch steel casing will be used.

Underground utility crossing shall be constructed with 42 inches of cover from the top of the pipe to the low spot of the ditch or toe of slope as shown on the attached Typical Highway Boring Crossing Detail.

No change shall be made contrary to this permit and the applicant's plans without first notifying and being approved by the Permit Engineer.

Construction of the utility shall not interfere with any operations of the Kentucky Transportation Cabinet on KY 92.

All work and materials shall meet or exceed the Standard Specifications.

All disturbed portions of the right-of-way are to be restored to grass as per Kentucky Department of Highways Standard Specifications for Road and Bridge Construction, 2019 edition. A satisfactory turf, as determined by the Department, is to be established by the permittee prior to release of indemnity.

The minimum rate of application for seeding and protection method II per 1,000 square feet shall be applied as follows:

2.5 lbs of seed mixture
12 lbs of 20-10-10 fertilizer
150 lbs of agricultural limestone

Work area within the Kentucky Department of Highways right of way shall be signed and flagged in accordance to the Manual on Uniform Traffic Control Devices before any work is to begin on the Kentucky Department of Highways right of way.

Contractor's equipment or other vehicles shall not be permitted to park on the roadway shoulders during the construction of this project without compliant traffic control.

This permit will be terminated and work will stop immediately at anytime the Department of Highways discovers or is notified of any unsafe or hazardous condition until corrections have been made.

It shall be the responsibility of the applicant to contact the Kentucky Department of Highways District 8 Permits Office at 606-677-4017 a minimum of 2 working days before work begins on KY Transportation Cabinet right of way.



APPLICATION FOR ENCROACHMENT PERMIT

KYTC KEPT #: 08-2021-00384

SECTION 1: APPLICANT CONTACT INFORMATION

APPLICANT McCreary County Water District	ADDRESS 456 North Hwy 27		
EMAIL	CITY Whitley City	STATE KY	ZIP 42653
CONTACT NAME 1 Stephen Whitaker	EMAIL stepwhitaker@gmail.com	PHONE # 606-376-2540	CELL #
		CONTACT NAME 2 (if applicable) Alan Robinson	EMAIL arobinson@eclipseengineers.net
		PHONE # 606-451-0959	CELL # 859-433-9585

SECTION 2: PROPOSED WORK LOCATION

ADDRESS KY 92	CITY Pine Knot	STATE Kentucky	ZIP 42635
COUNTY McCreary	ROUTE # KY 92	MILE POINT 18.8	LONGITUDE (X) 36°39'48" LATITUDE (Y) 84°23'58"

ADDITIONAL LOCATION INFORMATION:

FOR KYTC USE ONLY

PERMIT TYPE: Air Right Entrance Utilities Vegetation Removal Other: _____

ACCESS: Full Partial by Permit **LOCATION:** Left Right Crossing

SECTION 3: GENERAL DESCRIPTION OF WORK

The project will include the installation of approximately 1,220 LF of 2-inch PVC waterline, a yard hydrant, and related appurtenances. The installed waterline will run parrell to KY 92 on the southern side from approximately Tom Neal Road to Herb Neal Road.

AD

THE UNDERSIGNED APPLICANT(s), being duly authorized representative(s) or owner(s), DO AGREE TO ALL ORIGINAL UNEDITED TERMS AND CONDITIONS ON THE TC 99-1A, pages 1-4.

Stephen Whitaker
 SIGNATURE

9/14/21
 DATE

This is not a permit unless and until the applicant(s) receives an approved TC 99-1B from KYTC. This application shall become void if not approved by the cancellation date. The cancellation date shall be a minimum of one year from the date the applicant submits their application.



APPLICATION FOR ENCROACHMENT PERMIT

TERMS AND CONDITIONS

1. The permit, including this application and all related and accompanying documents and drawings making up the permit, remains in effect and is binding upon the Applicant/Permittee, its successors and assigns, as long as the encroachment(s) exists and also until the permittee is finally relieved by the Department of Highways from all its obligations.
2. Applicants shall meet all requirements of the Clean Water Act if the project will disturb one acre or more, the applicant shall obtain a KPDES KYR10 Permit from the Kentucky Division of Water. All disturbed areas shall meet the requirements of the Department of Highway's Standard Specifications, Sections 212 and 213, as amended.
3. **INDEMNITY:**
 - A. **PERFORMANCE BOND:** The permittee shall provide to the Department a performance bond according to the Permits Manual, Section PE-203 as a guarantee of conformance with the Department's Encroachment Permit requirements.
 - B. **PAYMENT BOND:** At the discretion of the department, a payment bond shall be required of the permittee to ensure payment of liquidated damages assessed to the permittee.
 - C. **LIABILITY INSURANCE:** Liability insurance shall be required of the permittee (in an amount approved by the department) to cover all liabilities associated with the encroachment.
 - D. It shall be the responsibility of the permittee, its successors and assigns, to maintain all indemnities in full force and effect until the permittee is authorized to release the indemnity by the Department.
4. A copy of this application and all related documents making up the approved permit shall be given to the applicant and shall be made readily available for review at the work site at all times.
5. Perpetual maintenance of the encroachment is the responsibility of the permittee, its successors and assigns, with the approval of the Department as required, unless otherwise stated.
6. Permittee, its successors and assigns, shall comply with and agree to be bound by the requirements and terms of (a) this application and all related documents making up the approved permit, (b) by the Department's Permits Manual, and (c) by the Manual on Uniform Traffic Control Devices, both manuals as revised to and in effect on the date of issuance of the permit, all of which documents are made a part thereof by this reference. Compliance by the permittee, its successors and assigns, with subsequent revisions to applicable provisions of either manual or other policy of the Department may be made a condition of allowing the encroachment to persist under the permit.
7. Permittee agrees that this and any encroachment may be ordered removed by the Department at any time, and for any reason, upon thirty days written notice to the last known address of the applicant or to the address at the location of the encroachment. The permittee agrees that the cost of removing and of restoring the associated right-of-way is the responsibility of the permittee, its successors and assigns.
8. Permittee, its successors and assigns, agree that if the Department determines that motor vehicular safety deficiencies develop as a result of the installation or use of the encroachment, the permittee, its successors and assigns, shall provide and bear the expenses to adjust, relocate, or reconstruct the facilities, add signs, auxiliary lanes, or other corrective measures reasonably deemed necessary by the Department within a reasonable time after receipt of a written notice of such deficiency. The period within which such adjustments, relocations, additions, modifications, or other corrective measures must be completed will be specified in the notice.
9. Where traffic signals are required as a condition of granting the requested permit or are thereafter required to correct motor vehicular safety deficiencies, as determined by the Department, the costs for signal equipment and installation(s) shall be borne by the permittee, its successors and assigns and the Department in its reasonable discretion and only in accordance with the Department's current policy set forth in the Traffic Operations Manual and Permits Manual. Any modifications to the permittee's entrance necessary to accommodate signalization (including necessary easement(s) on private property) shall be the responsibility of the permittee, its successors and assigns, at no expense to the Department.



APPLICATION FOR ENCROACHMENT PERMIT

10. The requested encroachment shall not infringe on the frontage rights of an abutting owner without their written consent as hereinafter described. Each abutting owner shall express their consent, which shall be binding on their successors and assigns, by the submission of a notarized statement as follows, "I (we), _____, hereby consent to the granting of the permit requested by the applicant along Route _____, which permit does affect frontage rights along my (our) adjacent real property." By signature(s) _____ subscribed and sworn by _____ on this date _____.
11. The permit, if approved, is subject to the agreement that it shall not interfere with any similar rights or permit(s) previously granted to any other party, except as otherwise provided by law.
12. Permittee shall include documentation which describes the facilities to be constructed. Permittee, its successors and assigns, agree as a condition of the granting of the permit to construct and maintain any and all permitted facilities or other encroachments in strict accordance with the submitted and approved permit documentation and the policies and procedures of the Department. Permittee, its successors and assigns, shall not use facilities authorized herein in any manner contrary to that prescribed by the approved permit. Only normal usage as contemplated by the parties and by this application and routine maintenance are authorized by the permit.
13. Permittee, its successors and assigns, at all times from the date permitted work is commenced until such time as all permitted facilities or other encroachments are removed from the right-of-way and the right-of-way restored, shall defend, protect, indemnify and save harmless the Department from any and all liability claims and demands arising out of the work, encroachment, maintenance, or other undertaking by the permittee, its successors and assigns, related or undertaken pursuant to the granted permit, due to any claimed act or omission by the permittee, its servants, agents, employees, or contractors. This provision shall not inure to the benefit of any third party nor operate to enlarge any liability of the Department beyond that existing at common law or otherwise if this right to indemnity did not exist.
14. Upon a violation of any provision of the permit, or otherwise in its reasonable discretion, the Department may require additional action by the permittee, its successors and assigns, up to and including the removal of the encroachment and restoration of the right-of-way. In the event additional actions required by the Department under the permit are not undertaken as ordered and within a reasonable time, the Department may in its discretion cause those or other additional corrective actions to be undertaken and the Department shall recover the reasonable costs of those corrective actions from the permittee, its successors and assigns.
15. Permittee, its successors and assigns, shall use the encroachment premises in compliance with all requirements of federal law and regulation, including those imposed pursuant to Title VI of the Civil Right Act of 1964 (42 U.S.C. § 2000d et seq.) and the related regulations of the U.S. Department of Transportation in Title 49 C.F.R. Part 21, all as amended.
16. Permittee, its successors and assigns, agree that if the Department determines it is necessary for the facilities or other encroachment authorized by the permit to be removed, relocated or reconstructed in connection with the reconstruction, relocation or improvement of a highway, the Department may revoke permission for the encroachment to remain under the permit and may order its removal, relocation or reconstruction by the permittee, its successors and assigns, at the expense of the permittee, except where the Department is required by law to pay any or all of those costs.



APPLICATION FOR ENCROACHMENT PERMIT

- 17. Permittee agrees that the authorized permit is personal to the permittee and shall remain in effect until such time as (a) the permittee's rights to the adjoining real property to have benefitted from the requested encroachment have been relinquished, (b) until all permit obligations have been assumed by appropriate successors and assigns, and (c) unless and until a written release from permit obligations has been granted by the Department. The permit and its requirements shall also bind the real property to have benefitted from the requested encroachment to the extent permitted by law. The permit and the related encroachment become the responsibility of the successors and assigns of the permittee and the successors and assigns of each property owner benefitting from the encroachment, or the encroachment may not otherwise permissibly continue to be maintained on the right-of-way. (Does not apply to utility encroachments serving the general public.)
- 18. If work authorized by the permit is within a highway construction project in the construction phase, it shall be the responsibility of the permittee to make personal contact with the Department's Engineer on the project in order to coordinate all permitted work with the Department's prime contractor on the project.
- 19. This permit is not intended to, nor shall it, affect, alter or alleviate any requirement imposed upon the permittee, its successors and assigns, by any other agency.
- 20. Permittee, its successors and assigns, agree to contain and maintain all dirt, mud, and other debris emanating from the encroachment away from the surrounding right-of-way and the travel way of the highway hereafter and at all times that its obligations under the permit remain in effect.
- 21. Before You Dig: The contractor is instructed to call 1-800-752-6007 to reach KY 811, the One-Call system for information on the location of existing underground utilities. The call is to be placed a minimum of two (2) and no more than ten (10) business days prior to excavation. The contractor should be aware that the owners of underground facilities are not required to be members of the KY 811 One-Call Before U-Dig (BUD) service. The contractor must coordinate excavation with the utility owners, including those whom do not subscribe to KY 811. It may be necessary for the contractor to contact the County Clerk to determine what utility companies have facilities in the area.
- 22. The undersigned Utility acknowledges ownership and control of the facilities proposed to be installed, modified, or extended by the Applicant/Permittee and agrees to be bound by the requirements and terms of this application and all related documents making up the approved permit, by the Department's Permits Guidance Manual, and by all applicable regulations and statutes in effect on the date of issuance of the permit. This information and application is certified correct to the best knowledge and belief of the undersigned Utility.

McCreech County Water District

UTILITY

Stephen Whitaker

NAME (Utility Representative)

Superintendent

TITLE (Utility Representative)

Stephen Whitaker

SIGNATURE (Utility Representative)

9/14/21

DATE



Know what's below. Call before you dig.

To Submit a Locate Request
24 Hours a Day, Seven Days a Week:
Call 811 or 800-752-6007



ENCROACHMENT PERMIT GENERAL NOTES & SPECIFICATIONS

Permit No. 08-2021-00384

I. SAFETY

A. General Provisions

- All signs and control of traffic shall be in accordance with the Manual on Uniform Traffic Control Devices for Streets and Highways, latest edition, Part VI, and safety requirements shall comply with the Permits Manual.
- All work necessary in shoulder or ditch line areas of a state highway shall be scheduled to be promptly completed so that hazards adjacent to the traveled way are kept to an absolute minimum.
- No more than one (1) traveled-lane shall be blocked or obstructed during normal working hours. All signs and flaggers during lane closure shall conform to the Manual on Uniform Traffic Control Devices.
- When necessary to block one (1) traveled-lane of a state highway, the normal working hours shall be as directed by the Department. No lanes shall be blocked or obstructed during adverse weather conditions (rain, snow, fog, etc.) without specific permission from the Department. Working hours shall be between 8:30 AM and 4:00 PM
- The traveled-way and shoulders shall be kept clear of mud and other construction debris at all times during construction of the permitted facility.
- No nonconstruction equipment or vehicles or office trailers shall be allowed on the right of way during working hours.
- The right of way shall be left free and clear of equipment, material, and vehicles during non-working hours.

B. Explosives

- No explosive devices or explosive material shall be used within state right of way without proper license and approval of the Kentucky Department of Mines and Minerals, Explosive Division.

C. Other Safety Requirements

- All workers must wear OSHA conforming personal protection items at all times when work is performed on the KYTC right of way. All traffic control must conform to the latest edition of the Manual on Uniform Traffic Control Devices

II. UTILITIES * Applies to Fully Controlled Access Highways ONLY

- *All work necessary within the right of way shall be performed behind a temporary fence erected prior to a boring operation.
- *The temporary woven wire fence shall be removed immediately upon completion of work on the right of way, and the control of access immediately restored to original condition, in accordance with applicable Kentucky Department of Highways Standard Drawings.
- *All vents, valves, manholes, etc., shall be located outside of the right-of-way.
- *Encasement pipe shall extend from right-of-way line to right-of-way line and shall be one continuous run of pipe. The encasement pipe shall be welded at all joints.
- The boring pit and tail ditch shall extend past the existing toe of slope or bottom of ditch line and shall be a minimum of 42 inches deep.

II. UTILITIES (Continued)

- Encasement pipe shall conform to current standards for highway crossings in accordance with the Permits Manual.
- Parallel lines shall be constructed between back slope of ditch line and right-of-way line and shall have a minimum of 42-inch cover above top of pipe or conduit.
- All pavement cuts shall be restored per attached encroachment terms.
- Aerial crossing of this utility line shall have a minimum clearance of _____ feet from the high point of the roadway to the low point of the line (calculated at the coefficient for expansion of 120 degrees Fahrenheit).
- The 30-foot clear zone requirement shall be met to the extent possible in accordance with the Permits Manual.
- Special requirements:

III. GENERAL

A. OSHA

- Kentucky Occupational Safety and Health Standards for the construction industry, which has the effect of law, states in part: (Page 52, 1926.651, Specific Excavation Requirements) "Prior to opening an excavation, effort shall be made to determine whether underground installations, (sewer, telephone, water, fuel, electric lines, etc.) will be encountered, and if so, where such underground installations are located. When the excavation approaches the estimated location of such an installation, the exact location shall be determined, and when it is uncovered, proper supports shall be provided for the existing installation. Utility companies shall be contacted and advised of proposed work prior to the start of actual excavation."

B. Archaeological

- Whenever materials of an archaeological nature are discovered during the course of construction work or maintenance operations, contact shall be made immediately with the Division of Environmental Analysis, which maintains an archaeologist on staff, or with the Office of the State Archaeologist located at the University of Kentucky. Following this consultation, further action shall be decided on a case-by-case basis by the State Highway Engineer or the Transportation Planning Engineer or their designated representative.

C. Utilities in the Work Areas

- The permittee shall be responsible for any damage to existing utilities, and any utility modifications or relocations within state right of way necessary, as determined by the Department or by the owner of the utility, shall be at the expense of the permittee and subject to the approval of the Department.
- All existing manholes and valve boxes shall be adjusted to be flush with finished grade.

D. Environmental

- If the activity to which this permit relates disturbs one acre or more of land, you must obtain a KPDES KYR10 permit.

Websites

<http://www.water.ky.gov/permitting/wastewaterpermitting/KPDES/storm/>

Inspectors for KPDES KYR10 at www.KEPSC.org

IV. RIGHT OF WAY RESTORATION

- All disturbed portions of the right of way shall be restored to grass as per Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition). A satisfactory turf, as determined by the Department, shall be established by the permittee prior to release of indemnity. Sodding or seeding shall be as follows:

Slopes 3:1 or flatter	90% Kentucky 31 Tall Fescue 10% White Dutch Clover
-----------------------	---

Slopes steeper than 3:1	70% KY 31 Fescue 30% Partridge Pea
-------------------------	---------------------------------------

- Two tons of clean straw mulch per acre of seeding.
- Prior to seeding, the ground shall be prepared in accordance with Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).
- Substitutes for sod such as artificial turf, rocked mulch, or paved areas may be acceptable if they are aesthetically pleasing.
- All ditch-flow lines and all ditch-side slopes shall be sodded.
- Existing concrete right of way markers shall not be disturbed, but if damaged in any way, they shall be entirely replaced by the permittee, with new concrete markers to match the original markers, in accordance with Kentucky Department of Highways Standard Drawings. Markers that are entirely removed shall be re-established in the proper locations by the permittee and to the satisfaction of the Department.
- Other right of way restoration requirements are as follows:

V. DRAINAGE

- All pipe shall be laid in a straight alignment, to proper grades, and with all materials and methods of installation including bedding and joint seating in accordance with Department Standard Specifications for Road and Bridge Construction (latest edition). Pipe shall not be covered until inspected by the Department and express permission obtained to make backfill.
- All gutter lines at the base of new curbs shall be on continuous grades, and pockets of water along with curbs or in entrance areas or other paved areas within the right of way shall not be acceptable.
- All drainage structures and appurtenances (manholes, catch basins, curbing, inlet basins, etc.) shall conform to Department specifications and shall be constructed in accordance with the Department Standard Drawings. Type required:

VI. Paving

- No bituminous pavement shall be installed within the right of way between November 15 and April 1, nor when the temperature is below 40 degrees Farenheit, without the express consent of the Department. No bituminous pavement shall be installed when the underlying course is wet.
- Paving within the right of way shall be as follows:
 - Base (Type) _____ (Thickness) _____
 - Surface Base (Type) _____ (Thickness) _____
 - Finished Surface (Type) _____ (Thickness) _____
- Existing pavement and shoulder material shall be removed to accomodate the above paving specifications.
- The finished surface of all new pavement within the right of way shall be true to the required slope and grade, uniform in density and texture, free of irregularities, and equivalent in riding qualities to the adjacent highway pavement or as determined by the Department of Highways.
- All materials and methods of construction, including base and subgrade preparation, shall be in accordance with Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).
- 48 hours notice to the Department is required prior to beginning paving operations.
Phone: _____ Name: _____
- To ensure proper surface drainage, the new pavement shall be flush with the edge of existing highway pavement and shall slope away from the existing edge of the pavement as specified in drawings.
- Existing edge of pavement shall be saw-cut to provide a straight and uniform joint for new pavement. An approved joint sealer, in accordance with Kentucky Department of Highways Standard Specifications (latest edition), shall be applied between new and existing pavements.

VII. SIDEWALKS SPECIFICATIONS *This dimension should be equal to the width of the sidewalk.

A. New Sidewalks

- Sidewalks shall be constructed of Class A concrete (3,500 p.s.i. test), shall be * _____ feet in width, 8 inches in thickness across the entrances, and 4 inches in thickness across the remaining sections.
- Sidewalks shall have tooled joints not less than 1 inch in depth at four foot intervals*, and 1/2 premolded expansion joints extending entirely through the sidewalk at intervals not to exceed 50 feet.
- All materials and methods of construction, including curing, shall be in accordance with the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).

B. Existing Sidewalks

- (Applicable if existing sidewalks are being relocated) Use of the sidewalk shall not be blocked or obstructed, and a usable walkway shall be maintained across the construction area at all times.
- All damaged sections of the sidewalks shall be entirely replaced to match existing sections.

VIII. DENSE GRADED SHOULDERS

- Any existing dense-graded aggregate shoulders in the entire frontage within the construction area, which have been disturbed or damaged or on which dirt has been placed or mud has been deposited or tracked, shall be restored to original condition by removal of all contaminated material and replaced to proper grade with new dense-graded aggregate.
- All new aggregate shoulders as specified in the plan shall consist of 5 inches of compacted dense-graded aggregate, 2^{1/2} pounds per square yard of calcium chloride.
- All dense-graded aggregate shoulders shall slope away from the new edge of pavement at the rate of 3/4 inch per foot.

IX. CURBING**A. Bituminous Curbs**

- Bituminous concrete curbs shall be given a paint coat of asphalt emulsion.
- The surface under the bituminous concrete curb shall be tacked with asphalt emulsion.
- All bituminous concrete curbs shall be constructed of a Class I bituminous concrete mixture as specified by official Department of Highways specifications.
- All bituminous curbs shall be rolled curb, with a minimum base width of 8 inches and a minimum height of _____ inches. The top of the curb shall be constructed in such a manner as to guarantee a uniform rolled effect throughout the entire run.

B. Concrete Curbs

- All curbs or curb and gutter shall be constructed of Class A concrete (3,500 p.s.i. test) and shall be uniform in height, width, and alignment, true to grade, and satisfactory in finish and appearance as determined by the Department. All materials and methods of construction, including curing, shall be in accordance with Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).
- All concrete curbs shall be 6 inches in width, extend _____ inches above finished grade and 12 inches below finished grade, with all visible edge rounded to 1/2 inch radii.
- All concrete curbs shall have expansion joints constructed at intervals of not more than 30 feet, and 1/2 inch premolded expansion joint material (cut to conform to the curb or to the curb and gutter section) shall be used in each expansion joint.
- The last _____ feet of all concrete curbs are to be tapered down to finished grade.

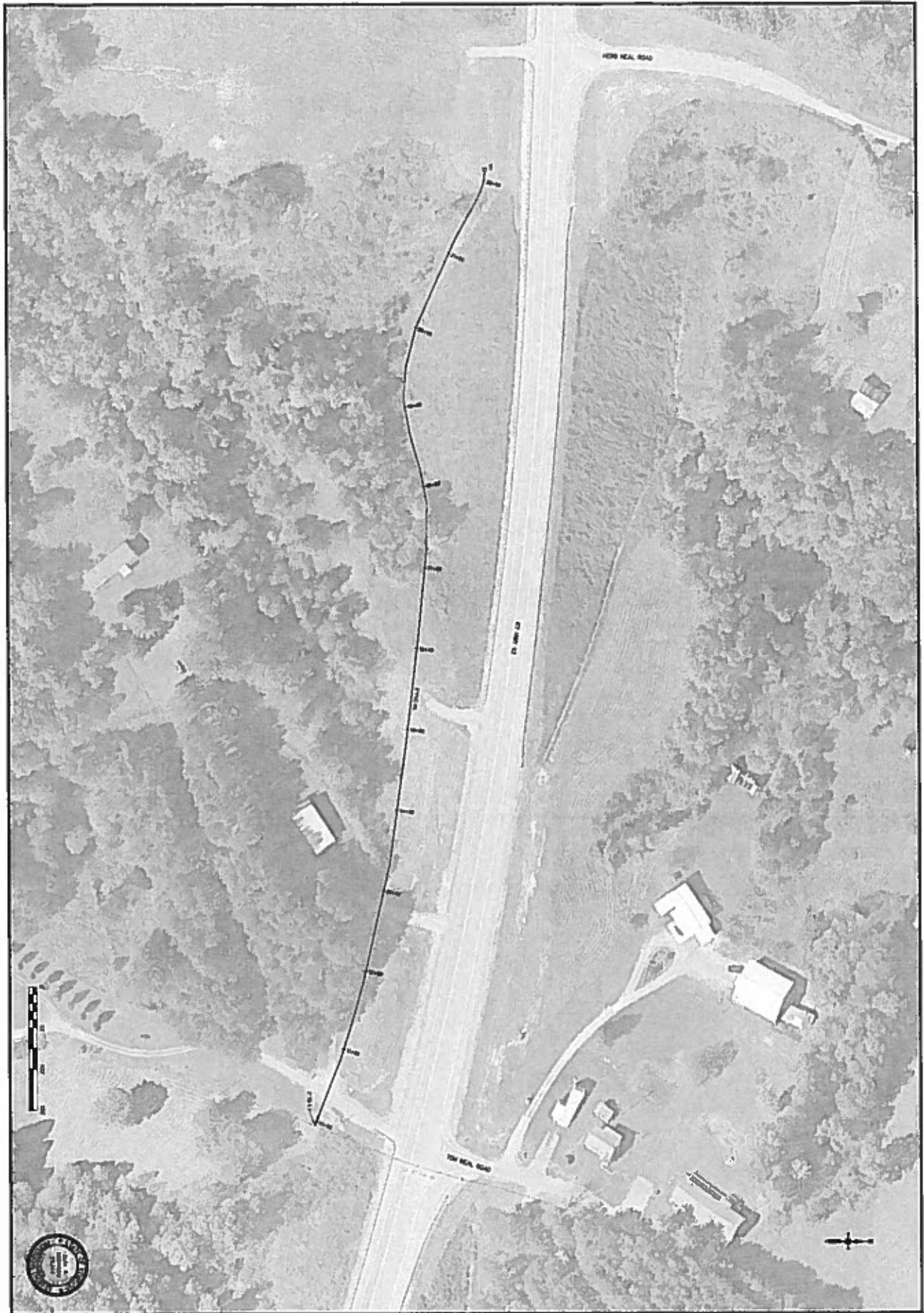
X. RIGHT-OF-WAY FENCE REPLACEMENT

- The replacement fence shall be a height of at least 48 inches and shall be of sufficient density to contain all animals (if applicable).

- The replacement fence shall be a minimum of 1 foot outside the right-of-way line. The fence materials and
- design shall meet accepted industry standards and be treated as paintable.
- The permittee shall be required to maintain the fence in a high state of repair.
- The existing fence shall be removed by permittee and stored at the Department's maintenance storage yard for future reuse by the Department.
- The control of access shall not be diminished as a result of replacement of the fence.
- Miscellaneous:

NOTICE TO PERMITTEE

THE PERMITTEE AGREES THAT ALL WORK WITHIN THE EXISTING RIGHT OF WAY SHALL BE DONE IN ACCORDANCE WITH THE PLANS AS APPROVED AND PERMITTED BY AN ENCROACHMENT PERMIT. ANY CHANGES OR VARIANCES MADE AT THE TIME OF CONSTRUCTION WITHOUT WRITTEN APPROVAL FROM THE DEPARTMENT OF HIGHWAYS SHALL BE REMOVED BY THE PERMITTEE AT NO EXPENSE TO THE DEPARTMENT OF HIGHWAYS AND SHALL BE REDONE BY THE PERMITTEE TO CONFORM WITH THE APPROVED PLANS.



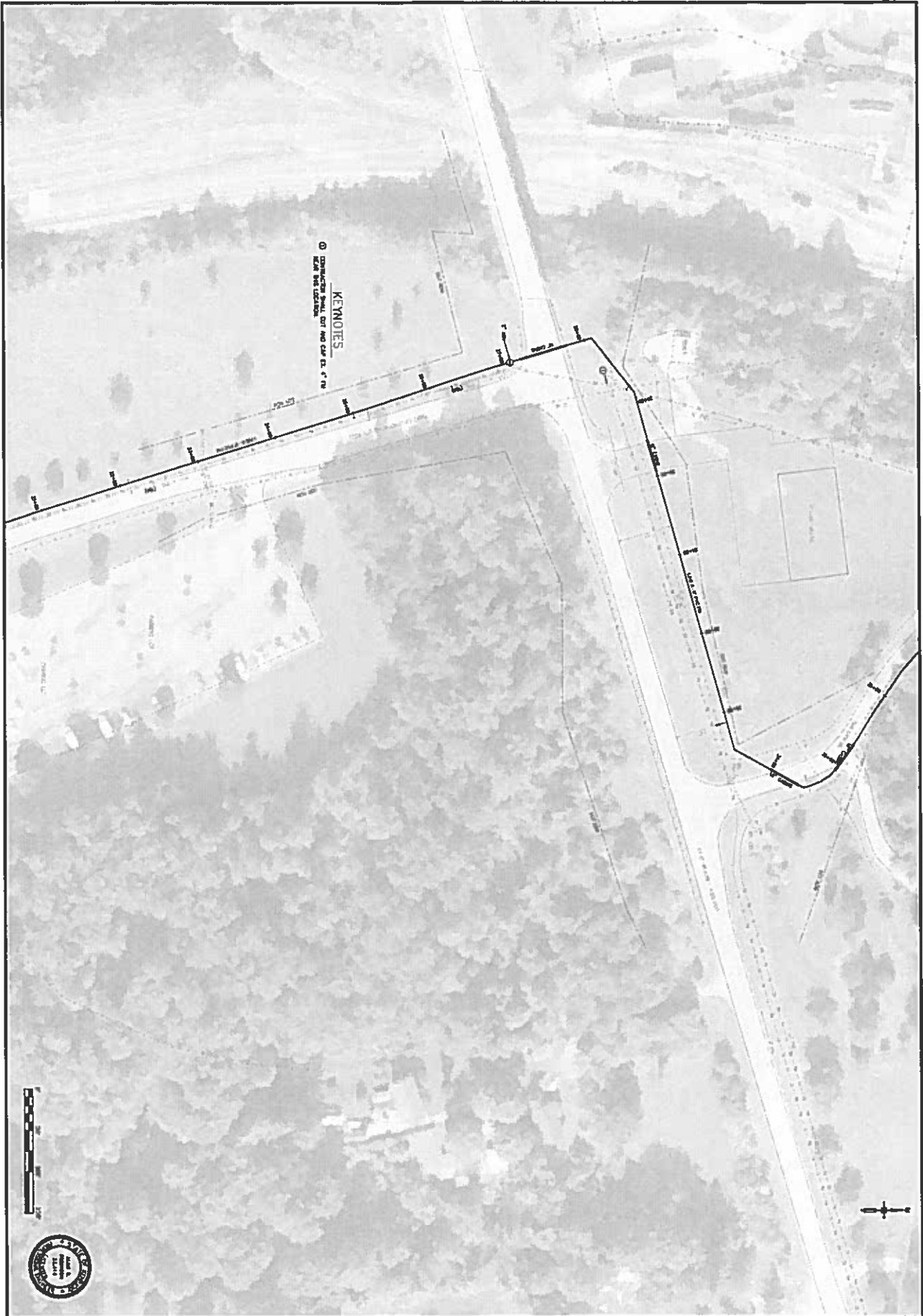
DATE PLOTTED: 11/11/2011

PLAN
KY 92 WATERLINE EXTENSION

McCREARY COUNTY
WATER DISTRICT
408 N HWY 27
WARTLEY CITY KENTUCKY 42653

SCALE	1" = 50'	REVISION	BY	DATE
DESIGNED BY	SSB			
DRAWN BY	WAB			
CHECKED BY	SSB			
PROJECT NO	21027			
DATE	SEPTEMBER 11 2011			
CAD DWG ID	11-09-001-01			

ECLIPSE ENGINEERING, PLLC
 93 WEST 21st AVE. WHEELERS STREET
 SCARLETT, KENTUCKY 40375
 PHONE: 502-334-0853



KEYNOTES
 ① CONTRACTOR SHALL CUT AND CAP EX. 12" MAIN TO BE EXPOSED



SHEET NUMBER
4

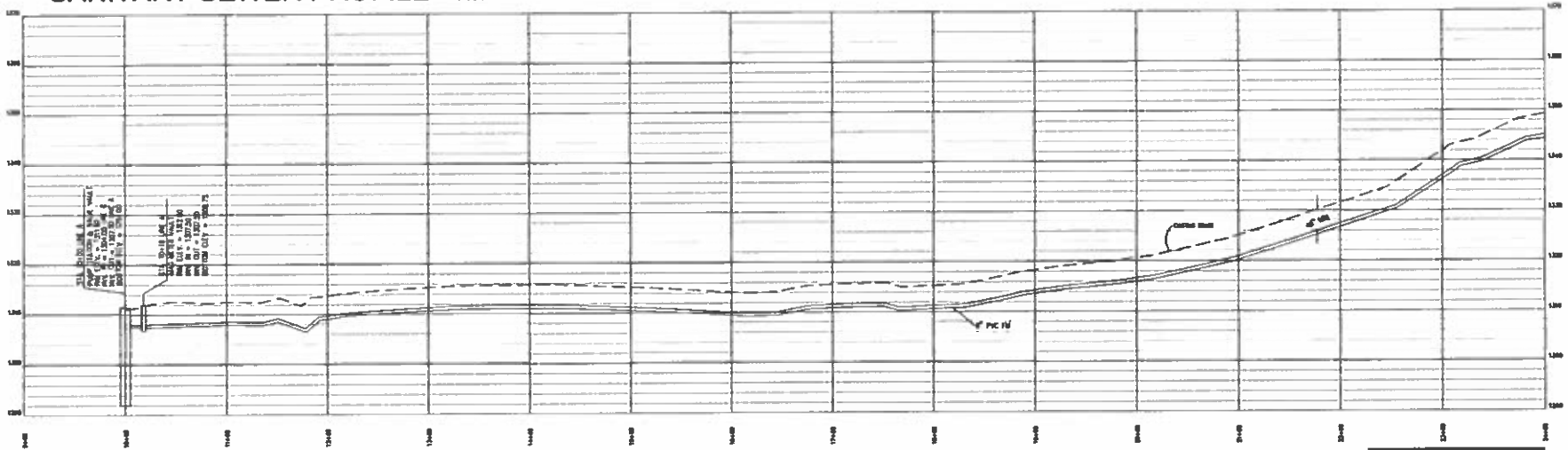
PLAN - LINE A
 CONTRACT No. 37 - FIBROTEX SANITARY SEWER
 PUMP STATION AND FORCE MAIN

**MCCREARY COUNTY
 WATER DISTRICT**
 408 N HWY 37
 WHITLEY CITY, KENTUCKY 42953

SCALE	1" = 40'	REVISION	BY	DATE
DESIGNED BY	ASB			
DRAWN BY	WRS			
CHECKED BY	ASB			
PROJECT NO.	100-1			
DATE	DEC 2021			
CAD DWG BY	ash			

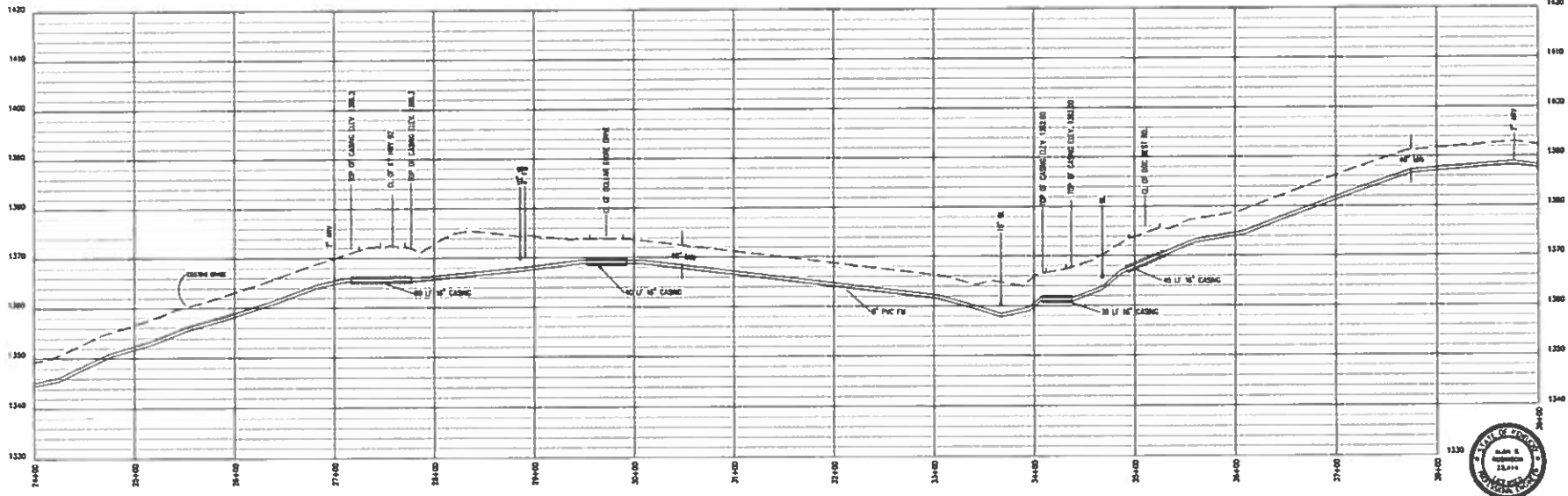
ECLIPSE ENGINEERS, PLLC
 13 WHEELER VERMILION STREET
 COLUMBIANA, KENTUCKY 42304
 PHONE: 606-438-7888

SANITARY SEWER PROFILE - LINE A FORCE MAIN



PROFILE SCALE
 VERTICAL 1" = 10'
 HORIZONTAL 1" = 50'

SANITARY SEWER PROFILE - LINE A FORCE MAIN



ECLIPSE ENGINEERING, LLC
 13451 WINDY HOLLOW DRIVE
 FLORENCE, KY 40302
 (502) 885-1000

DATE	BY	NO. REVISION	AS SHOWN	DATE	BY

DESIGNED BY: [Blank]
 DRAWN BY: [Blank]
 CHECKED BY: [Blank]
 DATE: [Blank]

PROJECT NO.: [Blank]
 SHEET NO.: [Blank]
 TOTAL SHEETS: [Blank]

MACCREARY COUNTY
 WATER DISTRICT
 100 N. MAIN ST.
 WHITLEY CITY, KENTUCKY 40360

SANITARY SEWER PROFILE - LINE A
 CONTRACT NO. 37 - FIBROTEK SANITARY SEWER
 PUMP STATION AND FORCE MAIN

DATE: [Blank]
 DRAWN BY: [Blank]
 CHECKED BY: [Blank]
 DATE: [Blank]

PROJECT NO.: [Blank]
 SHEET NO.: [Blank]
 TOTAL SHEETS: [Blank]



**TYPICAL HIGHWAY BORE DETAIL
 - FOR NON-FULLY CONTROLLED HIGHWAYS -**

KYTC KEPT #: _____

SECTION 1: HIGHWAY INFORMATION

COUNTY McCreary	ROUTE KY 92	MILE POINT 15.7	PAVEMENT WIDTH 24 ft.
--------------------	----------------	--------------------	--------------------------

SECTION 2: UTILITY INFORMATION

UTILITY TYPE Sanitary Sewer	PIPE TYPE PVC - SDR 17	DIAMETER 8-inch
--------------------------------	---------------------------	--------------------

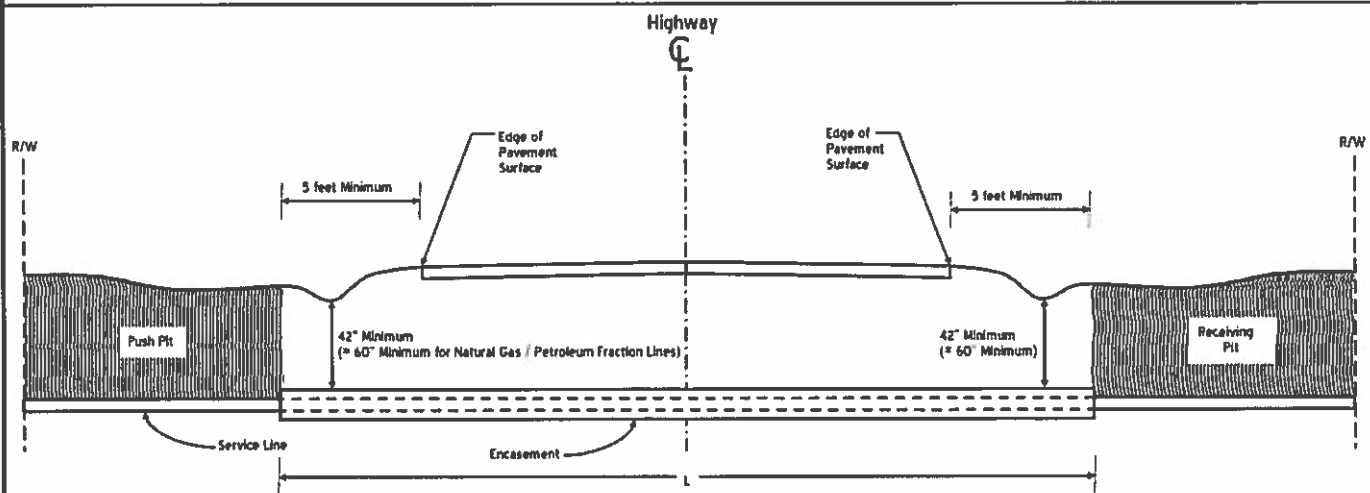
SECTION 3: ENCASEMENT INFORMATION

ENCASEMENT TYPE Steel Casing	DIAMETER 16-inch
---------------------------------	---------------------

SECTION 4: BORE INFORMATION

BORE TYPE Bore and Jack	LENGTH (L) 60 ft.	DIAMETER 16-inch
----------------------------	----------------------	---------------------

SECTION 5: DETAIL FOR NON-FULLY CONTROLLED HIGHWAYS



SECTION 6: GENERAL NOTES

- Push Pit and Receiving Pit shall be backfilled and thoroughly compacted.
- All ditch lines are to remain open at all times and restored to original condition.
- Shape, Seed and Straw all disturbed areas immediately after completing the work.
- Provide traffic control as required to ensure the safety of the traveling public in accordance with the current edition of the *Manual on Uniform Traffic Control Devices*.
- The minimum depth for underground utilities is 42" under roadways, ramps, and ditch lines, except for natural gas and petroleum fraction lines which shall have a minimum of 60" cover.
- See KYTC Permits Manual for all requirements and specifications.

EXHIBIT 10

RESOLUTION NO. 96011101

Whereas the McCreary County Fiscal Court is desirous of facilitating the timely construction of the sewer lines and appurtenances designated as Phase I, McCreary County Sewer System, the intent of said project being the construction of sewer lines, valves, air release/vacuum relief units, clean out and flushing units and pumping stations and the maintenance, repair, replacement and/or extension of said system as necessary. Be it hereby resolved that the County Judge/Executive be authorized to grant easements on behalf of McCreary County to the McCreary County Water District on all public roads as required by the plans for the Phase I project.


Motion made by MR. HINES

Seconded by MR. LAWSON

Vote _____ Nay

GREENE, LAWSON, HINES, TAYLOR & REDDEN Yea

1-11-96



Jimmie W. Greene
County Judge/Executive

ORDERS

McCREARY

COURT

Special Term, February Day, 13th Day of February 19 64.

FORM G-7-T

The McCreary County Fiscal Court met on February 13, 1964, with the honorable Judge, Prince L. Stephens The Following Magistrates being Present:

Hicks Present, Perry Present, Creekmore Present, Jones Present, Davis Present, Taylor Present, Tapley Present, Trammell Present:

On Motion of Hicks and seconded by Trammell it is ordered by the Court that McCreary County and the Fiscal Court of McCreary County grant and convey to the McCreary County water District a right-of-way and easement to construct, maintain lay and repair water pipes, mains, conduits and other and all necessary facilities on, under, through and across all McCreary County Roads and all McCreary County Road rights-of way lying and being in the McCreary County Water district as set out in metes and bounds in an order of the McCreary County Court in order Book 6 Pages 539, and 540 and Prince L. Stephens as Judge of the McCreary County Court and presiding Officer of the Fiscal Court is hereby ordered and directed to execute and deliver to the McCreary County Water District the above described easement for and in behalf of McCreary County and in behalf of this Court.

A Yea and Nay vote being taken the Magistrates voted as follows: Hicks Yea, Perry Yea, Creekmore Yea, Jones Yea, Davis Yea, Taylor Yea, Tapley Yea, Trammell Yea.

On Motion of Perry and seconded by Tapley it is ordered that this Court hire Mark Sumner to deliver the 26 Voting Machines to McCreary County for the sum of \$75.00 and deliver 3 of these Machines to the Court House and the other 23 to Stearns, Kentucky for Storage in the basement of the Old Marcum Garage.

A Yea and Nay vote being taken the Magistrates voted as follows: Hicks Yea, Perry Yea, Creekmore Yea, Jones Yea, Davis Yea, Taylor Yea, Tapley Yea, Trammell Yea.

On Motion of Hicks and seconded by Tapley it is ordered that this Court authorize the County Attorney James A. Inman to file a Ex-Protie proceedings in behalf of the McCreary County Fiscal Court; the budget commissioners of - McCreary County; The McCreary County Attorney James A. Inman; Judge Prince L. Stephens, Judge McCreary County Court; and Carl Barnett as Clerk of the McCreary County Court for the purpose of obtaining judgement of the McCreary Circuit Court on the issues set out in said action.

A Yea and Nay vote being taken the Magistrates voted as follows: Hicks Yea, Perry Nay, Creekmore Yea, Jones Nay, Davis Yea, Taylor Yea, Tapley Yea, Trammell Nay.

On Motion of Trammell and seconded by Perry it is ordered that this Court recend to order as recorded in Fiscal Court Order Book #7, Page 424, in regards to the constructing of building at the back of McCreary County Court House.

A Yea and Nay vote being taken, the magistrates voted as follows: Hicks Yea, Perry Yea, Creekmore Yea, Jones Yea, Davis Yea, Taylor Yea, Tapley Nay, Trammell Yea.

On Motion of Jones and seconded by Davis it is ordered that the Magistrates be paid for One days service, and this Court Adjourn until March 5, 1964, 9:30 AM.

A Yea and Nay vote being taken the Magistrates voted as follows: Hicks Yea, Perry Yea, Creekmore Yea, Jones Yea, Davis Yea, Taylor Yea, Tapley Yea, Trammell Yea.

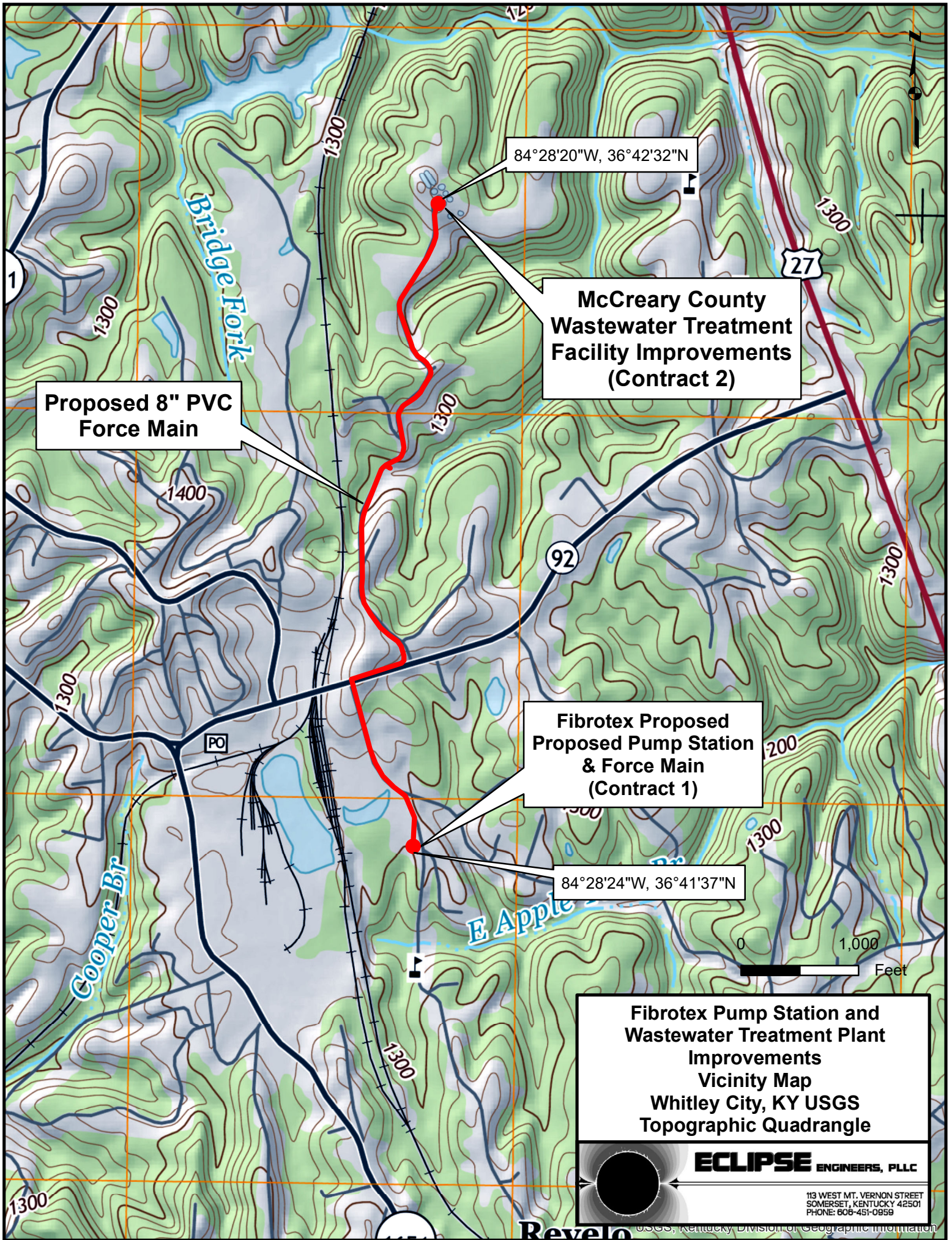
EXHIBIT 11

Description of Route and Location of Proposed Facilities

The proposed sewer force main will begin in south central McCreary County at the Fibrotex manufacturing facility along Shirt Factory Road, directly south of Kentucky Highway 92 (Wilburn K. Ross Highway) and approximately one mile west of South US Highway 27 in Stearns, Kentucky. The project will span the corridor of Shirt Factory Road, beginning at the Fibrotex manufacturing facility running north along Shirt Factory Road and then crossing KY 92 until it reaches Dick Road. It will then run parallel along Dick Road for a distance of approximately 1.15 miles until it reaches the McCreary County Water District Sewage Treatment Plant.

EXHIBIT 12

EXHIBIT 12A



84°28'20"W, 36°42'32"N

**McCreary County
Wastewater Treatment
Facility Improvements
(Contract 2)**

**Proposed 8" PVC
Force Main**

**Fibrotex Proposed
Proposed Pump Station
& Force Main
(Contract 1)**

84°28'24"W, 36°41'37"N

0 1,000 Feet

**Fibrotex Pump Station and
Wastewater Treatment Plant
Improvements
Vicinity Map
Whitley City, KY USGS
Topographic Quadrangle**

ECLIPSE ENGINEERS, PLLC
113 WEST MT. VERNON STREET
SOMERSET, KENTUCKY 42501
PHONE: 606-451-0959

EXHIBIT 12B

**McCreary County
Wastewater Treatment
Facility Improvements
(Contract 2)**

**Fibrotex Proposed
Proposed Pump Station
& Force Main
(Contract 1)**



CERTIFIED RIGHT-OF-WAY MAP

We, the undersigned, certify that the color-coded title, ROW, easement, and other authorizations herein shown, have been obtained in legally acceptable form and are available for construction and perpetual maintenance of the proposed facility plans. We also certify that the proposed construction and improvements are within the owner's legally established boundaries and/or the owner has the legal authority to serve the area.

- Private Property ROW —————
- County Road Easement —————
- State Hwy. Easement —————
- City Street Easement —————
- Property Owned in Fee Simple —————
- Easements on which structures will be constructed ▨▨▨▨▨▨▨▨▨▨
- Water District Boundary - - - - -

Owner _____

Engineer _____

Owners Legal Counsel _____

ECLIPSE ENGINEERS, PLLC

113 WEST MT. VERNON STREET
SOMERSET, KENTUCKY 42501
PHONE: 606-451-0959

EXHIBIT 13

Preliminary Engineering Report

Economic Development Wastewater Improvements

prepared for:

**McCreary County Water District
456 North Highway 27
Whitley City, Kentucky 42653**

prepared by:

**Eclipse Engineers, PLLC
113 West Mt. Vernon Street
Somerset, Kentucky 42501
(606) 451-0959**

September 5, 2019



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Chapter I - General

Applicant Name: McCreary County Water District

The McCreary County Water District (MCWD) is the sole entity that provides water and wastewater services to McCreary County. Due to the county being primarily forest, the majority of it is owned by the federal government. Approximately 43% is owned and managed by the Daniel Boone National Forest Service, and an additional 18% of the county is owned and managed by the National Park Service, also known as the Big South Fork National River and Recreation Area, totaling 61% percent of the county. McCreary County was the final county to be formed in the state of Kentucky, and currently is the only county that does not have a single incorporated city. Due to this, the county government is the sole local government agency for the entire county, making it much more difficult to urbanize populated areas due to the lack of a separate city entity. McCreary County is divided east and west by US 27, and divided north and south by KY 92. These two major highways run concurrently with one another making the county readily accessible from other surrounding counties. In addition to easy transportation accessibility, the county is also served by Norfolk Southern Railway, which includes several industrial sidings in the area, including a major railway traffic interchange with the Kentucky and Tennessee Railway in Stearns, Kentucky.

To better serve existing and future industrial manufacturing facilities, McCreary County Water District desires to replace existing undersized waterlines, sewer lines, and a pump station to serve the proposed expansion of a manufacturing facility along KY 683 (Shirt Factory Road). The project will also include various improvements to the Wastewater Treatment Plant (WWTP). The new Economic Development Wastewater Improvements Project is anticipated to be funded by an Economic Development Agency (EDA) Grant, and an Appalachian Regional Commission (ARC) Grant.

Chapter II – Project Planning Area

A. Location

A location map showing the project site is included in Appendix A.

B. Environmental Resources

Appendix B contains a copy of the FEMA maps for McCreary County influenced by the project area. There will be no stream or creek crossings required for the construction of this project.

C. Growth Areas and Population Trends

McCreary County experienced minimal population growth from 2000 to 2015. The county's population only increased five percent during this time. However, until recently, the county experienced considerable growth from the past several decades.

Population projections contained from the Kentucky State Data Center, indicate that the county will continue to experience minimal growth through the year 2020, then will most likely plateau and begin to slightly decline over the next 20 years to the year 2040. This is most likely due to the majority of the county being primarily forest and comprised of rural areas, therefore, very little development is foreseen in the future to the county's urban areas to help increase and sustain population growth.

Population Data and Projections
McCreary County, Kentucky

Year	Population
1970 ¹	12,548
1980 ¹	15,634
1990 ¹	15,603
2000 ¹	17,078
2010 ²	18,306
2015 ²	17,878
2020 ²	17,840
2025 ²	17,630
2030 ²	17,320
2035 ²	16,929
2040 ²	16,486

Notes: ¹Source: <http://population.us/>

²Source: Kentucky State Data Center, www.ksdc.org

D. Socio-Economic Conditions

Since 2017, McCreary County employment has been dominated by the private industry sector, followed by trade, transportation, and utilities, as well as, education and health, and leisure and hospitality sectors. The private industry sector accounted for approximately 47 percent of all jobs in 2017, and the trade, transportation, utilities, education and health services, leisure and hospitality, and financial activities sectors accounted for 32 percent of all employment in 2017. All other employment sectors accounted for only 14 percent of all employment in McCreary County in 2017.

The importance of the private industry sector to the economic base of McCreary County has continued to exceed other major industries within the county. In the 1980's and early 1990's natural resources, coal mining, timber, and manufacturing played a vital role in the county's stability and growth, but by the late 1990's and early 2000's, these once economical influences quickly dissipated and dried up. This in turn caused the county to quickly adjust its approach in continuing to bring economic stability to the county, therefore allowing the private sectors to grow and develop rapidly.

Agriculture has never played an important role in the county’s economy due to extreme topography and primarily forest inhabiting the county. In the early 2000’s approximately only five percent of the county was farmland, and continues to remain generally the same today. These low numbers are because the county has never been able to sustain any substantial agricultural industries, which is primarily due to the majority of the county being owned by the federal government. McCreary County is currently ranked 111 out of 120 counties in overall agricultural production.

McCreary County Employment by Major Industry and Wages by Category, 2017¹

Category	Employment (McCreary Co.)	Average Weekly Wage (McCreary Co.)	Average Weekly Wage (Kentucky)
Natural Resources and Mining	2	\$279	\$1,049
Construction	20	\$534	\$1,011
Manufacturing	185	\$545	\$1,108
Trade, Transportation, and Utilities	467	\$567	\$789
Information	19	\$1,116	\$1,044
Financial Activities	131	\$582	\$1,236
Professional and Business Services	53	\$440	\$931
Education and Health Services	278	\$418	\$906
Leisure and Hospitality	242	\$231	\$327
Other Services and Unclassified	34	\$345	\$626
Total Private Industries	1,432	\$482	\$865
Total (All Industries)	3,074	\$645	\$845

¹Source: U.S Department of Labor, Bureau of Labor Statistics.

Major Manufacturing Firms and Employment in McCreary County – 2019¹

Firm	Employment	Year Established
McCreary County Hardwood, Inc.	33	1988
Pine Knot Lumber, Inc.	47	1978
Outdoor Venture Corporation	160	1972

Note: ¹Source: Kentucky Cabinet for Economic Development, 2019

Chapter III - Existing Facilities

A. Location Map

The Economic Development Water and Wastewater Improvements Project will begin at the newly constructed Fibrotex manufacturing facility along KY 683 (Shirt Factory Road) located in south central McCreary County directly off of KY 92 (Wilburn K. Ross Hwy) approximately one mile west of South US Hwy 27 in Stearns, Kentucky. The project will span the corridor of KY 683 beginning at the Fibrotex manufacturing facility traveling north along KY 683 then crossing KY 92 until it reaches Dick Road, then traveling parallel along Dick Road for a distance of approximately 1.15 miles until it reaches the McCreary County Water District Wastewater Treatment Plant.

B. History

McCreary County Water District (MCWD) has a record of providing excellent water and sewer services to industries and private businesses that continue to come to McCreary County. MCWD has been proactive in providing enough capacity in their water and wastewater treatment plants to provide for ample growth in the economy as the county continues to grow in population and economic development.

C. Condition of Facilities

MCWD owns and operates the public water and wastewater systems in McCreary County. The water system serves approximately 6,200 total customers throughout the entire county and the wastewater system serves approximately 1,100 total customers primarily in the areas around and including Whitley City. Drinking water is also sold via wholesale agreement to Whitley County Water District. MCWD operates two water treatment plants (WTP) and one wastewater treatment plant (WWTP).

Chapter IV- Need for Project

A. Health and Safety

This area of McCreary County is known for having wet, marshy soil conditions that do not favor water percolating into the soil leading to soil erosion and ground movement. These conditions can lead to sewer line breaks from deteriorated and undersized force mains due pressure fluctuations and flow changes in the lines. The installation of a new appropriate sized force main to accompany the existing force mains using proper bedding and backfill will help improve and reduce the risk to public health of unwanted contaminants leaching into the soil and the ground's water table.

B. System Operation & Maintenance

This project will provide a much more reliable, sustainable sewer system for the southern industrial section of the county located near Stearns, Kentucky. Higher pressures and flow will be able to be sustained which will decrease electric pumping costs. Fewer trips from operators to repair line breaks will be needed, saving travel costs.

C. Growth

As stated above, McCreary County has been and is projected to remain constant in economic development and population that is concurrent with other rural counties within the state of Kentucky. Providing exceptional sewer services will be a key component to increasingly help sustain this consistent growth and development within the county. Therefore, installing a new 6-inch force main accompanied by the expansion of MCWD's wastewater treatment plant will be vital in successfully allowing for opportunistic growth and development throughout the county.

Chapter V – Alternatives Considered

A. Description

Alternatives to provide sewer to the newly constructed Fibrotex manufacturing facility along KY 683 (Shirt Factory Road) include the following:

- Install new 500 GPM pump station and 8-inch force main equipped to handle additional flow anticipated by the proposed industry and provide equalization volume for this flow by constructing a 3rd oxidation ditch at the WWTP. Other improvements at the WWTP needed include replacement of the screening and grit removal systems. This alternative would be best and would improve the ability to convey and contain the additional flow and anticipated expansions to the industry in the near future. This alternative provides means to treat this industrial flow before mixing with the total flow if needed.
- Continue to operate the existing pump station and 4-inch force main, but make the necessary improvements at the WWTP to accommodate the additional flow. This alternative would be better than the “do nothing” alternative but wouldn’t address future flow anticipated as the industry expands in the near future.
- Do nothing. Continue to serve the existing flow and the new industry flow without making any improvements. This alternative will eventually result in SSOs and potential WWTP permit violations.

If either of the second two alternatives are chosen, this industrial area will be underserved.

B. Environmental Impacts

None of the alternatives mentioned will have direct environmental impacts on the diversity of wildlife, or the habitat within the project area.

Chapter VI – Proposed Project (Recommended Alternative)

The selected alternative is Alternative No. 1 – Install new 500 GPM pump station and 8-inch force main to convey existing and future flows to the WWTP. Construct a 3rd oxidation ditch to be used as an equalization basin and replace the existing screening and grit removal systems. As previously describe and outlined in the EDA investment project description section of the original application.

A. Project Design

This project will consist of the replacement of a 100 GPM sanitary sewer pump station with a 500 GPM pump station. The project will replace approximately 2,000 LF of 4-inch force main and extend directly to the WWTP with 6,500 LF of 8-inch PVC SDR 17. This system will convey flow from the existing OVC industry including their existing employees in addition to process flow from the new Fibrotex USA industry and new employees.

This flow could potentially increase in the near future as production increases. Due to this potential increase, and the chemical nature of this industrial wastewater, a 3rd oxidation ditch concrete structure will be constructed and will receive only this dedicated flow. This oxidation ditch will serve as an equalization basin and allow the flow to gravity flow back to the headworks of the WWTP in a controlled flow manner.

The screening system and grit removal systems are at or nearing the end of their useful lives. These systems need to be replaced to secure proper operation and provide efficient screenings and grit removal prior to biological treatment.

The useful life of the proposed facilities will vary. In general, concrete and fixed structures will have a useful life of 30 to 40 years. Equipment, moving parts, and items exposed to raw wastewater will have a shorter useful life of around 20 years. The proposed pump station concrete and equipment will have a 20-year life. The force main will have a useful life of around

30-40 years. The equalization basin concrete will serve as a future oxidation ditch and the system without any equipment or moving parts should have a 40 year life. The screen and grit removal systems will have a 20 year useful life and will require routine maintenance to extend the life to that point.

B. Design Criteria

The proposed project will be designed using the standards established by the Natural Resources and Environmental Protection Cabinet, Kentucky Division of Water, General Design Criteria for Surface and Ground Water Supplies. In addition, the Great Lakes Upper Mississippi River Board of State Public Health and Environmental Managers, Recommended Standards for Water Works, (Ten State Standards) 1997 will be used to guide the design process.

C. Construction Method

The proposed project will be based on a design / bid / build method using the sealed competitive bid process.

D. Number of Contracts

The proposed project will consist of two possible contracts. The first contract will consist of the Fibrotex pump station and force main installation to the wastewater treatment plant (WWTP). The second contract will consist of the necessary improvements at the existing WWTP to accommodate the excess flow via the construction of a 3rd oxidation ditch, and replacing the existing screening and grit removal systems.

E. Cost Estimates

Detailed cost estimates of the selected alternative are provided in Appendix C.

F. Permits

The proposed project will consist of obtaining two permits. The first will be an encroachment permit from the Kentucky Department of Highways that will take approximately 45 days for approval from the submittal date. The encroachment permit is required due to the newly proposed force main being in the state highway right-of-way traveling along Dick Road to the WWTP. The second permit will be a construction permit from the Kentucky Division of Water that will take approximately 45 days for approval from the submittal date. Once design is completed for the propose project the necessary permits will be submitted for approval.

G. Estimated Project Schedule

The estimated project schedule will include the following approximate time frames:

- a. design period / 90 days
- b. period of time to obtain required permits / 60 days
- c. period of time to obtain any required easements or rights-of-way / 60 days concurrent with the period of time to obtain required permits
- d. solicitation of bids and awarding of contracts / 120 days
- e. construction period / 365 days

H. Title Requirements

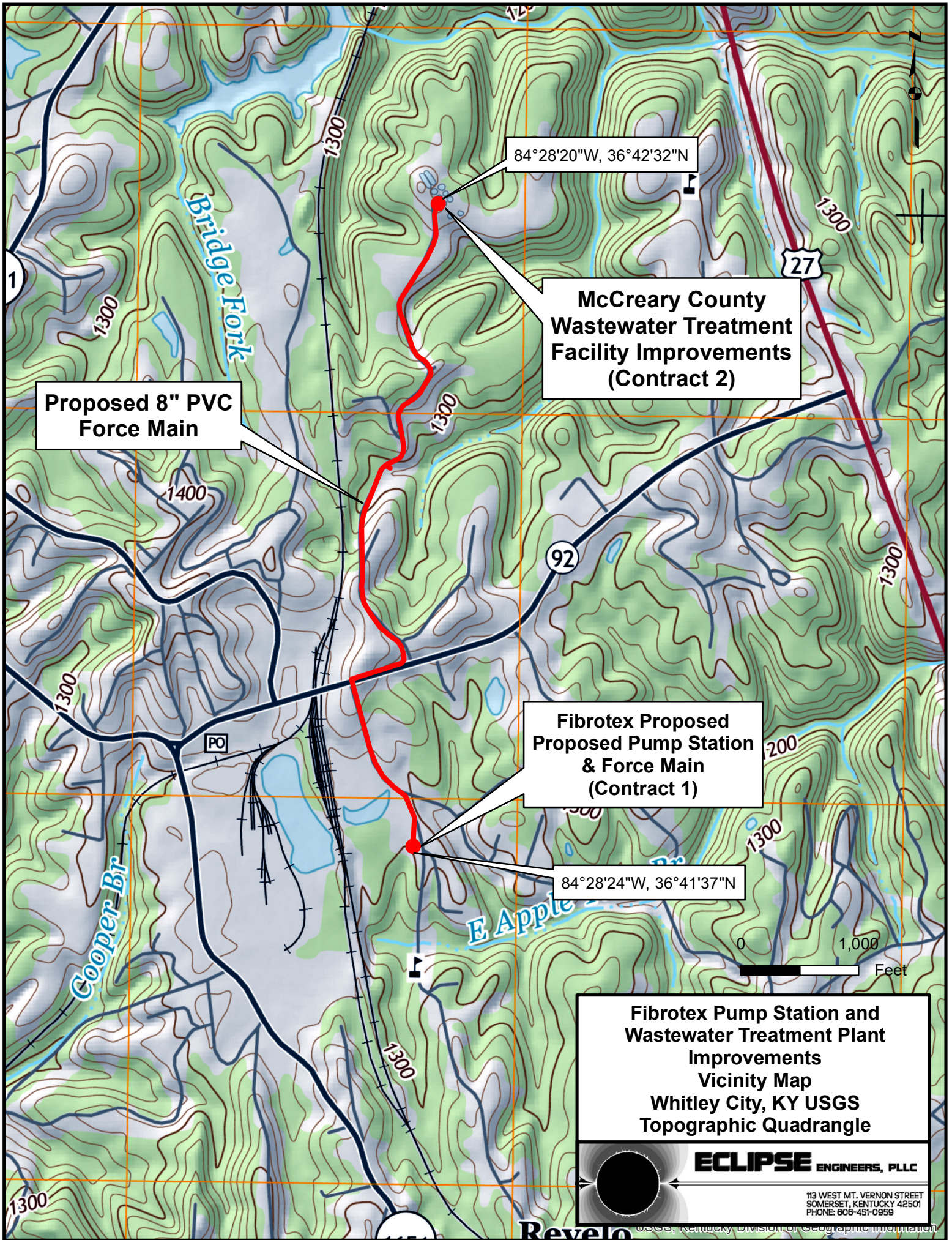
The proposed project will only require a Kentucky Department of Highways permit. All other titles are secured by the existing easement or property owned.

Chapter VII – Conclusions and Recommendations

McCreary County is very fortunate to have an industrial expansion of this size. This expansion will produce more new jobs in a single hire than any in the last 15 years. With this, the McCreary County Water District must be capable of providing safe, reliable drinking water and adequate sewer services to this industry and their existing customers as well. This project will improve the cash flow of MCWD and is needed to assure proper conveyance and treatment of the sanitary sewer produced from this much needed economic growth.

Appendix A - Location Map

- Schematic Layout of Proposed Utilities



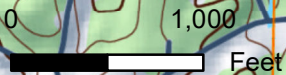
**Proposed 8" PVC
Force Main**

84°28'20"W, 36°42'32"N

**McCreary County
Wastewater Treatment
Facility Improvements
(Contract 2)**

**Fibrotex Proposed
Proposed Pump Station
& Force Main
(Contract 1)**

84°28'24"W, 36°41'37"N



**Fibrotex Pump Station and
Wastewater Treatment Plant
Improvements
Vicinity Map
Whitley City, KY USGS
Topographic Quadrangle**

ECLIPSE ENGINEERS, PLLC
113 WEST MT. VERNON STREET
SOMERSET, KENTUCKY 42501
PHONE: 606-451-0959

**McCreary County
Wastewater Treatment
Facility Improvements
(Contract 2)**

**Fibrotex Proposed
Proposed Pump Station
& Force Main
(Contract 1)**



CERTIFIED RIGHT-OF-WAY MAP

We, the undersigned, certify that the color-coded title, ROW, easement, and other authorizations herein shown, have been obtained in legally acceptable form and are available for construction and perpetual maintenance of the proposed facility plans. We also certify that the proposed construction and improvements are within the owner's legally established boundaries and/or the owner has the legal authority to serve the area.

- Private Property ROW —————
- County Road Easement —————
- State Hwy. Easement —————
- City Street Easement —————
- Property Owned in Fee Simple —————
- Easements on which structures will be constructed ▨▨▨▨▨▨▨▨▨▨
- Water District Boundary - - - - -

Owner _____

Engineer _____

Owners Legal Counsel _____



ECLIPSE ENGINEERS, PLLC

113 WEST MT. VERNON STREET
SOMERSET, KENTUCKY 42501
PHONE: 606-451-0959

Appendix B - FEMA Maps

Appendix C - Opinion of Probable Project Costs

**Opinion of Probable Project Cost
Economic Development Wastewater Improvements**

**McCreary County Water District
Whitley City, Kentucky**

Item No.	Description	Quantity	Unit	Unit Price	Total
1	General Conditions	1	LS	\$40,000	\$40,000
2	8-inch PVC SDR 17 Force Main	6500	LF	\$35	\$227,500
3	Connect to Existing PVC Force Main	1	EA	\$2,000	\$2,000
4	8-inch PVC SDR 35 Gravity Sewer	500	LF	\$40	\$20,000
5	12-inch PVC SDR 35 Gravity Sewer	50	LF	\$50	\$2,500
6	4-foot Diameter Manhole	3	EA	\$3,000	\$9,000
7	Pump and Piping Removal / Demolition	1	LS	\$5,000	\$5,000
8	Mag Meter Vault	1	LS	\$10,000	\$10,000
9	500 GPM Duplex Pumps (2) and VFD Controls	1	LS	\$220,000	\$220,000
10	Wetwell / Valve Vault / Piping - Complete	1	LS	\$70,000	\$70,000
11	Chain Link Security Fence	120	LF	\$25	\$3,000
12	Yard Hydrant	1	EA	\$3,000	\$3,000
13	Miscellaneous Electric	1	LS	\$30,000	\$30,000
14	Telemetry	1	LS	\$20,000	\$20,000
15	Earthwork	1	LS	\$50,000	\$50,000
16	WWTP Mechanical Screening System Repl.	1	LS	\$200,000	\$200,000
17	WWTP Grit Removal System Replacement	1	LS	\$230,000	\$230,000
18	WWTP Oxidation Ditch Equalization Basin	1	EA	\$600,000	\$600,000
19	WWTP Yard Piping and Valves	1	LS	\$30,000	\$30,000
Total Opinion of Probable Construction Cost					\$1,772,000
Construction Contingency					\$177,200
Engineering - Design					\$112,000
Engineering - Bidding					\$7,000
Engineering - Construction Administration					\$21,000
Engineering - Resident Project Representation					\$85,500
Administration and Legal					\$50,000
Engineering Subtotal					\$275,500
Total Opinion of Probable Project Cost					\$2,224,700

Appendix D - Preliminary Project Costs

Preliminary Project Costs
McCreary County Water District
Economic Development Wastewater Improvements

PRE-BID BUDGET INFORMATION			
Cost Classification	Total Cost	Cost Not Allowable	Total Allowable Cost
1. Administrative & Legal	\$50,000.00	\$0.00	\$50,000.00
2. Land, Structures ,etc.	0.00	0.00	0.00
3. Relocation	0.00	0.00	0.00
4. Architectural & Engineering (Design, Bidding, Const. Admn.)	140,000.00	0.00	140,000.00
5. Other Architect. & Eng. Fees (Mapping and Hydraulic Model)	0.00	0.00	0.00
6. Project Inspection	85,500.00	0.00	85,500.00
7. Site Work	0.00	0.00	0.00
8. Demolition & Removal	0.00	0.00	0.00
9. Construction	1,772,000.00	0.00	1,772,000.00
10. Equipment	0.00	0.00	0.00
11. Misc.	0.00	0.00	0.00
12. SUBTOTAL	2,047,500.00	0.00	2,047,500.00
13. Contingencies	177,200.00	0.00	177,200.00
14. TOTAL PROJECT COSTS	\$2,224,700.00	\$0.00	\$2,224,700.00

EXHIBIT 14

**Opinion of Probable Project Cost
Economic Development Wastewater Improvements
Contract No. 37 - Pump Station, Force Main, and Screening System**

**McCreary County Water District
Whitley City, Kentucky**

<i>Item No.</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Unit Price</i>	<i>Total</i>
1	General Conditions	1	LS	\$20,000	\$20,000
2	8-inch PVC SDR 35 Gravity Sewer	180	LF	\$60	\$10,800
3	12-inch PVC SDR 35 Gravity Sewer	11	LF	\$200	\$2,200
4	8-inch PVC SDR 21 Force Main	6375	LF	\$70	\$446,250
5	16-inch Steel Casing Pipe – Directional Bore	240	LF	\$500	\$120,000
6	2-inch Combination Air Release Valve Assembly	3	EA	\$7,000	\$21,000
7	4-foot Diameter Manhole	3	EA	\$8,000	\$24,000
8	Connect to Manhole (G-1)	1	EA	\$3,000	\$3,000
9	Connect to Existing 2-inch Force Main	1	LS	\$1,000	\$1,000
10	Cut and Cap Existing Force Main	1	EA	\$3,000	\$3,000
11	Removal of Existing Manhole	2	EA	\$1,000	\$2,000
12	Removal of Existing Sanitary Sewer Piping	1	LS	\$2,000	\$2,000
13	Pumps and Controls	1	LS	\$250,000	\$250,000
14	Wetwell and Valve Vault	1	LS	\$100,000	\$100,000
15	Mag Meter Vault	1	LS	\$50,000	\$50,000
16	Emergency Generator Concrete Pad	1	LS	\$5,000	\$5,000
17	Miscellaneous Electric	1	LS	\$50,000	\$50,000
18	Chain-Link Fence with Gate	140	LF	\$60	\$8,400
19	Gravel Entrance Including Fenced Area	1	LS	\$12,000	\$12,000
20	Bituminous Pavement Replacement	240	SY	\$100	\$24,000
21	Demolition of Existing Screening System	1	LS	\$5,000	\$5,000
22	Purchase and Installation of New Screening System	1	LS	\$250,000	\$250,000
Total Opinion of Probable Construction Cost					\$1,409,650
Construction Contingency					\$140,965
Engineering - Design					\$99,000
Engineering - Bidding					\$6,200
Engineering - Construction Administration					\$18,500
Engineering - Resident Project Representation					\$77,000
Engineering Subtotal					\$200,700
Total Opinion of Probable Project Cost					\$1,751,315

EXHIBIT 15

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LEGAL

MCCREARY COUNTY WATER DISTRICT
WHITLEY CITY, KENTUCKY

CONTRACT NO. 37 - FIBROTEX SANITARY SEWER PUMP STATION AND FORCE MAIN

ADVERTISEMENT FOR BIDS

SEALED BIDS FOR THE CONSTRUCTION OF THE CONTRACT NO. 37 - FIBROTEX SANITARY SEWER PUMP STATION AND FORCE MAIN WILL BE RECEIVED BY MCCREARY COUNTY WATER DISTRICT, AT THE OFFICE OF THE 456 NORTH HWY 27, WHITLEY CITY, KENTUCKY 42653, UNTIL 3:00PM LOCAL TIME ON JULY 28, 2022, AT WHICH TIME THE BIDS RECEIVED WILL BE PUBLICLY OPENED AND READ. THE PROJECT WILL INCLUDE THE INSTALLATION OF 6,375 LF OF 8-INCH PVC FORCE MAIN, 180 LF OF 8-INCH PVC GRAVITY SEWER, 240 LF OF 18-INCH STEEL CASING PIPE (DIRECTIONAL BORE), 3 SANITARY SEWER MANHOLES, ONE PUMP STATION AND VALVE VAULT, ONE MAG METER VAULT, DEMOLITION AND INSTALLATION OF A NEW SCREENING SYSTEM, AND RELATED APPURTENANCES. BIDS WILL BE RECEIVED FOR A SINGLE PRIME CONTRACT. BIDS SHALL BE ON A UNIT PRICE AND LUMP PRICE BASIS, AS INDICATED IN THE BID FORM.

THE ISSUING OFFICE FOR THE BIDDING DOCUMENTS IS: LYNN IMAGING, 328 OLD VINE STREET, LEXINGTON, KENTUCKY 40507 (859) 255-1021. PROSPECTIVE BIDDERS MAY EXAMINE THE BIDDING DOCUMENTS AT THE ISSUING OFFICE ON MONDAYS THROUGH FRIDAYS BETWEEN THE HOURS OF 7:30AM - 5:00PM, AND MAY OBTAIN COPIES OF THE BIDDING DOCUMENTS FROM THE ISSUING OFFICE AS DESCRIBED BELOW.

BIDDING DOCUMENTS ALSO MAY BE EXAMINED AT ECLIPSE ENGINEERS PLLC, 113 WEST MT. VERNON STREET, SOMERSET, KENTUCKY 42501 (606) 451-0959, AT THE OFFICE ON MONDAYS THROUGH FRIDAYS BETWEEN THE HOURS OF 8:00AM - 5:00PM.

BIDDING DOCUMENTS MAY BE OBTAINED FROM THE ISSUING OFFICE DURING THE HOURS INDICATED ABOVE OR ONLINE AT WWW.LYNNIMAGING.COM. BIDDING DOCUMENTS ARE AVAILABLE VIA DOWNLOAD (AS PORTABLE DOCUMENT FORMAT (PDF) FILES) FOR A NON-REFUNDABLE CHARGE OF \$ 200 TWO HUNDRED DOLLARS. ALTERNATIVELY, PRINTED BIDDING DOCUMENTS MAY BE OBTAINED FROM THE ISSUING OFFICE EITHER VIA IN-PERSON PICK-UP OR VIA MAIL, UPON ISSUING OFFICE'S RECEIPT OF PAYMENT FOR THE BIDDING DOCUMENTS. THE NON-REFUNDABLE COST OF PRINTED BIDDING DOCUMENTS IS \$ 400 FOUR HUNDRED DOLLARS PER SET, PAYABLE TO "LYNN IMAGING", PLUS A NON-REFUNDABLE SHIPPING CHARGE. UPON ISSUING OFFICE'S RECEIPT OF PAYMENT, PRINTED BIDDING DOCUMENTS WILL BE SENT VIA THE PROSPECTIVE BIDDER'S DELIVERY METHOD OF CHOICE; THE SHIPPING CHARGE WILL DEPEND ON THE SHIPPING METHOD CHOSEN. THE DATE THAT THE BIDDING DOCUMENTS ARE TRANSMITTED BY THE ISSUING OFFICE WILL BE CONSIDERED THE PROSPECTIVE BIDDER'S DATE OF RECEIPT OF THE BIDDING DOCUMENTS. PARTIAL SETS OF BIDDING DOCUMENTS WILL NOT BE AVAILABLE FROM THE ISSUING OFFICE. NEITHER OWNER NOR ENGINEER WILL BE RESPONSIBLE FOR FULL OR PARTIAL SETS OF BIDDING DOCUMENTS, INCLUDING ADDENDA IF ANY, OBTAINED FROM SOURCES OTHER THAN THE ISSUING OFFICE.

NO BID WILL BE ACCEPTED UNLESS THE BIDDER IS A REGISTERED PLAN HOLDER. TO BECOME A REGISTERED PLAN HOLDER, BIDDER MUST PURCHASE AT LEAST ONE SET OF DOCUMENTS FROM LYNN IMAGING AND PROVIDE ACCURATE NAME AND CONTACT INFORMATION. PARTIAL SETS OF DOCUMENTS WILL NOT BE PROVIDED. HALF-SIZED SETS MAY BE PURCHASED FOR THE FULL PRICE. QUESTIONS SHALL BE ADDRESSED TO ALAN R. ROBINSON, P.E. OF ECLIPSE ENGINEERS, PLLC, 113 WEST MT. VERNON STREET, SOMERSET, KENTUCKY 42501 (606-451-0959) AS STATED IN THE SPECIFICATIONS OR BY EMAIL TO AROBINSON@ECLIPSEENGINEERS.NET.

THE OWNER RESERVES THE RIGHT TO WAIVE ANY INFORMALITY OR TO REJECT ANY OR ALL BIDS.

EACH BIDDER MUST DEPOSIT WITH HIS BID, SECURITY IN THE AMOUNT, FORM AND SUBJECT TO THE CONDITIONS PROVIDED IN THE INSTRUCTIONS TO BIDDERS.

NO BIDDER MAY WITHDRAW HIS BID WITHIN NINETY (90) CONSECUTIVE CALENDAR DAYS AFTER THE ACTUAL DATE OF THE OPENING THEREOF.

THE U.S. DEPARTMENT OF COMMERCE ECONOMIC DEVELOPMENT ADMINISTRATION IS PROVIDING PARTIAL FUNDING FOR THIS PROJECT (EDA INVESTMENT NO. 04-79-07457), AND THEREFORE, IS SUBJECT TO THE FEDERAL LAWS AND REGULATIONS ASSOCIATED WITH THAT PROGRAM.

BID SECURITY SHALL BE FURNISHED IN ACCORDANCE WITH THE INSTRUCTIONS TO BIDDERS.
OWNER: MCCREARY COUNTY WATER DISTRICT
BY: STEPHEN WHITAKER
TITLE: SUPERINTENDENT
DATE: JULY 28, 2022

EXHIBIT 16


ECLIPSE ENGINEERS, PLLC
 113 West Mt. Vernon Street
 Somerset, Kentucky 42501
 (606) 451-0959

PROJECT: BASE BID TABULATIONS
LOCATION: Contract 37 - Fibrotex Sanitary Sewer Pump Station and Force Main
BID DATE: 7/28/2022
BID TIME: 3:00 P.M.

ITEM NO.	ITEM DESCRIPTION	UNIT	QTY	Rose's Excavating P.O. Box 98 Marshes Sliding, KY 42631		Weddle Enterprises 25 Shanes Lane Somerset, KY 42501		Flo-Line Contracting, LLC 189 Sunstar Blvd. Monticello, KY 42633	
				UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL
1	General Conditions	LS	1	\$35,000.00	\$35,000.00	\$22,750.00	\$22,750.00	\$50,000.00	\$50,000.00
2	8-inch PVC SDR 35 Gravity Sewer	LF	180	\$55.55	\$9,999.00	\$49.00	\$8,820.00	\$30.00	\$5,400.00
3	12-inch PVC SDR 35 Gravity Sewer	LF	11	\$55.55	\$611.05	\$98.00	\$1,078.00	\$90.00	\$990.00
4	8-inch PVC SDR 21 Force Main	LF	6,375	\$31.80	\$202,725.00	\$70.00	\$446,250.00	\$59.00	\$376,125.00
5	16-inch Steel Casing Pipe - Directional Bore	LF	240	\$270.00	\$64,800.00	\$332.00	\$79,680.00	\$385.00	\$92,400.00
6	2-inch Combination Air Release Valve Assembly	EA	3	\$4,000.00	\$12,000.00	\$3,300.00	\$9,900.00	\$4,000.00	\$12,000.00
7	4-foot Diameter Manhole	EA	3	\$6,500.00	\$19,500.00	\$3,700.00	\$11,100.00	\$3,500.00	\$10,500.00
8	Connect to Manhole (G-1)	EA	1	\$1,200.00	\$1,200.00	\$1,710.00	\$1,710.00	\$1,500.00	\$1,500.00
9	Connect to Existing 2-inch Force Main	LS	1	\$1,200.00	\$1,200.00	\$1,380.00	\$1,380.00	\$1,300.00	\$1,300.00
10	Cut and Cap Existing Force Main	EA	1	\$1,500.00	\$1,500.00	\$3,720.00	\$3,720.00	\$1,000.00	\$1,000.00
11	Removal of Existing Manhole	EA	2	\$5,000.00	\$10,000.00	\$675.00	\$1,350.00	\$500.00	\$1,000.00
12	Removal of Existing Sanitary Sewer Piping	LS	1	\$10,000.00	\$10,000.00	\$675.00	\$675.00	\$100.00	\$100.00
13	Pumps and Controls	LS	1	\$154,701.00	\$154,701.00	\$135,000.00	\$135,000.00	\$144,000.00	\$144,000.00
14	Wellwell and Valve Vault	LS	1	\$142,478.00	\$142,478.00	\$167,500.00	\$167,500.00	\$189,000.00	\$189,000.00
15	Mag Meter Vault	LS	1	\$40,000.00	\$40,000.00	\$36,100.00	\$36,100.00	\$28,900.00	\$28,900.00
16	Emergency Generator Concrete Pad	LS	1	\$5,000.00	\$5,000.00	\$3,340.00	\$3,340.00	\$3,800.00	\$3,800.00
17	Miscellaneous Electric	LS	1	\$48,000.00	\$48,000.00	\$64,000.00	\$64,000.00	\$57,500.00	\$57,500.00
18	Chain-Link Fence with Gate	LF	140	\$142.00	\$19,880.00	\$150.00	\$21,000.00	\$80.00	\$11,200.00
19	Gravel Entrance Including Fenced Area	LS	1	\$5,000.00	\$5,000.00	\$4,500.00	\$4,500.00	\$15,000.00	\$15,000.00
20	Bituminous Pavement Replacement	SY	240	\$166.66	\$39,998.40	\$79.00	\$18,960.00	\$45.00	\$10,800.00
21	Demolition of Existing Screening System	LS	1	\$20,000.00	\$20,000.00	\$4,150.00	\$4,150.00	\$2,500.00	\$2,500.00
22	Purchase and Installation of New Screening System	LS	1	\$319,050.00	\$319,050.00	\$305,000.00	\$305,000.00	\$381,000.00	\$381,000.00
					\$1,163,154.00		\$1,347,963.00		\$1,396,015.00

Bidder's calculated total is as shown, written amount was \$10,000.00
 Bidder's calculated total is as shown, written amount was \$1,000.00
 Bidder's calculated total is as shown, written amount was \$20,000.00
 Bidder's calculated total is as shown, written amount was \$40,000.00
 Bidder's total amount written is shown, actual calculated total sum is \$1,162,642.45
 Bidder left Unit Cost blank. Amount shown has been calculated from Total as shown.
 Bidder's total amount was incorrectly added and written as \$1,388,815.00.

I certify that these bid tabulations are a true and correct tabulation of the bids received by the McCreary County Water District on July 28, 2022 at 3:00 pm

BY: 
 ALAN R. ROBINSON, P.E.
 Eclipse Engineers, PLLC

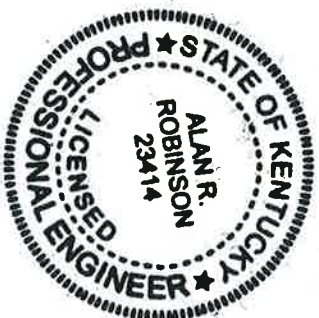


EXHIBIT 17

August 1, 2022

Mr. Stephen Whitaker
Superintendent
McCreary Co. Water District
456 North Hwy 27
Whitley City, Kentucky 42653

Re: Recommendation for Award
Contract No. 37 – Fibrotex Sanitary Sewer Pump Station and Force Main

Dear Mr. Whitaker:

I have compiled the bid tabulations as received by the McCreary Co. Water District for the project referenced above on July 28, 2022 and have attached the certified original. I have examined the bids and have checked references of the low bidder, Rose's Excavating. We recommend that MCWD accept their Bid of \$1,163,154.00.

Please do not hesitate to call if you have any questions.

Sincerely,
Eclipse Engineers, PLLC



Alan R. Robinson, P.E.
President

EXHIBIT 18

RESOLUTION NO. _____

**A RESOLUTION OF THE BOARD OF COMMISSIONERS OF MCCREARY
COUNTY WATER DISTRICT AWARING CONTRACT NO. 37 –
FIBROTEX SANITARY SEWER PUMP STATION AND FORCE MAIN**

WHEREAS, McCreary County Water District caused to be published in the July 14, 2022 edition of *The McCreary County Voice* an advertisement for bids for “Contract 37 - Fibrotex Sanitary Sewer Pump Station and Force Main” (“Contract”) in accordance with the provisions of KRS Chapter 424;

WHEREAS, the scope of the work for the Contract involves installation of approximately 6,375 linear foot (“LF”) of 8-inch polyvinyl chloride (“PVC”) SDR 21 force main, 180 LF of 8-inch PVC 35 gravity sewer, a 500 gallon per minute pump station, and related appurtenances;

WHEREAS, three firms submitted a bid on the Contract and each bid was in accordance with the terms of the advertisement;

WHEREAS, the lowest bid for the Contract was \$1,163,154 from Roses Excavating of Marshes Siding, Kentucky;

WHEREAS, Eclipse Engineering PLLC, the Project Engineer, has reviewed the bids and investigated the qualifications of the firm submitting the lowest bid, including contacting the references that each firm has provided;

WHEREAS, based upon its review and investigation, Eclipse Engineering PLLC recommended that McCreary County Water District award the Contract to Roses Excavating;

WHEREAS, KRS 278.020(1) requires a public utility to obtain a certificate of public convenience and necessity prior to the construction of any facility for furnishing sewer service to the public except which such construction is an extension of an existing system in the usual course of business;

WHEREAS, the Kentucky Public Service Commission has previously determined that, if the cost of a proposed facility will not require a utility to make a capital outlay from its own funds or to issue securities or evidences of indebtedness, the construction of the proposed facility will have no material effect on the utility’s financial condition and will constitute an extension of an existing system in the usual course of business; and

WHEREAS, there is uncertainty as to whether KRS 278.020(1) requires McCreary County Water District to obtain a certificate of public convenience and necessity for the proposed construction;

WHEREAS, McCreary County Water District intends to apply to the Kentucky Public Service Commission for a declaratory order that no certificate of public convenience and

necessity is required for the proposed construction, or in the alternative, for a certificate of public convenience and necessity;

NOW, THEREFORE, IT IS HEREBY RESOLVED BY THE BOARD OF COMMISSIONERS OF MCCREARY 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 acknowledges the information provided by Eclipse Engineering.

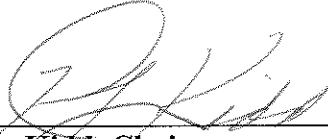
Section 3. Based upon the information provided by Eclipse Engineering, the Board of Commissioners finds

1. The bid of Roses Excavating in the amount of \$1,163,154 is the best evaluated bid for the Contract; and
2. It is in the best interest of McCreary County Water District to award the Contract to Roses Excavating.

Section 4. Roses Excavating is awarded Contract 37 - Fibrotex Sanitary Sewer Pump Station and Force Main, contingent upon McCreary County Water District obtaining from the Kentucky Public Service Commission a certificate of public convenience and necessity for the proposed construction or a declaratory order that the proposed construction does not require a certificate of public convenience and necessity.

Section 5. The Chairman of the Board of Commissioners and the Superintendent are authorized and directed to take any and all actions reasonably necessary to implement the award of the Contract to Roses Excavating.

ADOPTED BY THE BOARD OF COMMISSIONERS OF MCCREARY COUNTY WATER DISTRICT at a meeting held on August 26, 2022 signed by the Chairman and attested by the Secretary.



Randy Kidd, Chairman

ATTEST:

Coy Taylor
Coy Taylor, Secretary

CERTIFICATION

I, the undersigned, hereby certify that I am the duly qualified and acting Secretary of the McCreary County Water District; that the foregoing is a full, true and correct copy of a Resolution adopted by the Board of Commissioners of the McCreary County Water District at a meeting duly held on August 26, 2022; that said official action appears as a matter of public record in McCreary 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 26th day of August 2022.



Coy Taylor, Secretary

EXHIBIT 19

**STATEMENT OF ANNUAL COST OF OPERATION
OF THE PROPOSED FACILITIES**

The facilities constructed pursuant to Contract 37 involve the replacement of a 100 gallon per minute pump station with a 500 gallon per minute pump station. McCreary District estimates that the annual cost to operate the proposed replacement pump station will be approximately \$9,000 (approximately \$750 per month). The primary cost for these facilities will be electric power. The annual cost to operate the existing pump station is \$6,000 (approximately \$500 per month). Accordingly, the proposed facilities are expected to increase annual operating expense by approximately \$3,000.

EXHIBIT 20

EXHIBIT 20A

DEFENSE DAILY — HOMELAND SECURITY REPORT —

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Army

Army Awards Fibrotex USA 10-Year, \$480 Million To Deliver New Ultra-Light Camouflage



Fibrotex USA's Ultra-Light Camouflage Netting System

Share:



By Matthew Beinart | [@mbeinart22](#) 3 years ago | 11/08/2018

The Army has tapped **Fibrotex USA** for its next-generation ultra-light camouflage program with a 10-year, \$480 million deal to deliver a system capable of improved concealment from advanced battlefield sensors in all weather conditions.

Fibrotex is tasked with delivering the new Ultra-Light Camouflage Netting System (ULCANS) to replace the Army's legacy camouflage, with work expected to begin in early 2019.

"Today more than ever military forces and opposition groups are using night vision sensors and thermal devices against our troops, but by using Fibrotex's camouflage, concealment and deception solutions we make them undetectable again, allowing them to continue keeping us safe and save lives," Eyal Malleron, the company's CEO, said in a statement.

Army's Natick Soldier Systems Center kicked off the camouflage replacement search nearly two years ago, and earlier this year in March selected Fibrotex, HDT Expeditionary Systems and Saab Banafo to test their ULCANS offerings.

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The U.S. Army tested our best camouflage solutions and the camouflage repeatedly demonstrated the ability to defeat all sensors known to be operating in the battlefield and throughout the electromagnetic spectrum," Mallerson said.

The company's ULCANS camouflage is two-dimensional, lighter and more durable, and will be offered in woodland, desert, snow and urban environment configurations.

"Fibrotex' 2D ULCANS technology provides more persistent IR, thermal & counter-radar performance and offers a greater range of capabilities than known before," company officials said in a statement. "[We] will deliver the material in reversible designs, allowing for the first time a different pattern and capability on each side, enabling soldiers, vehicles and systems to disappear into light/dark woodland, snow/alpine and desert/urban environments, blending into the terrain in all weather conditions, anywhere on the globe."

The new camouflage is designed to hide objects on the battlefield across the entire electromagnetic spectrum, including infrared and thermal radars.

ULCANS will be produced at Fibrotex's new vertical manufacturing facility in McCreary County, Kentucky.

"Fibrotex is the only company in the world that has its own unique vertical manufacturing facility creating these systems from A-Z in a one-stop shop allowing us to control our technology, adapt and innovate in-house and most importantly, to provide tailor-made solutions to our clients," a company spokeswoman told *Defense Daily*.



Fibrotex USA's Ultra-Light Camouflage Netting System

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EXHIBIT 20B

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Fibrotex USA Selected to Deliver the U.S. Army's Next-Generation Camouflage System

- New ULCANS multispectral camouflage system will mask soldiers, vehicles and installations from state-of-the-art electro-optical sensors and radars
- Battle-winning, lightweight technology will be made in the USA to protect soldiers on operations around the world

WASHINGTON, D.C., November, 08 2018: Fibrotex USA Inc has won the contract to supply the U.S. Army's Next-Generation Ultra-Light Camouflage Netting System (ULCANS), proven to deliver world-leading protection across the electromagnetic spectrum. The contract is a 10-year, indefinite delivery / indefinite quantity award, with a total value of USD480 million. Full-rate production is expected to begin in early 2019.

Fibrotex USA's new ULCANS contract is the result of a nearly two-year long period of highly competitive testing, trials and data collection conducted by the U.S. Army's Natick Soldier Systems Center (PM-FSS), which assessed camouflage technologies from major global manufacturers against the Army's most advanced battlefield surveillance sensors.



Ultra-Light Camouflage Netting System (ULCANS)

The combat-proven technologies underpinning the new ULCANS are based on technology developed by parent company Fibrotex Technologies Ltd (FTL) over the last two decades, but have been specially modified for the U.S. Department of Defense. ULCANS will be manufactured in a new state-of-the-art vertical manufacturing facility in McCreary County, Kentucky – the only such facility in the U.S. – creating and securing hundreds of new skilled American jobs over the next ten years.

Kentucky Congressman Harold ‘Hal’ Rogers said “I firmly believe we have the best workforce in the country and that their hard work and dedication has earned these new jobs, helping deliver a vital new military contract from McCreary County. I take great pride in knowing that our people are crafting these products to keep our warfighters and allies safe, giving them an edge on the battlefield.”

The new facility is being established next to Outdoor Venture Corporation (OVC), which is a strategic partner to Fibrotex USA, and has been delivering soldier support systems to the U.S. Army for decades.

Mr. Malleron, CEO of Fibrotex USA: “Today more than ever military forces and opposition groups are using night vision sensors and thermal devices against our troops, but by using Fibrotex’ camouflage, concealment and deception solutions we make them undetectable again, allowing them to continue keeping us safe and SAVE LIVES.”

“We have more than 50 years of experience, with thousands of hours in the field and a deep understanding of conventional and asymmetric warfare. The U.S. Army tested our best camouflage solutions and the camouflage repeatedly demonstrated the ability to defeat all sensors known to be operating in the battlefield and throughout the electromagnetic spectrum.”

Fibrotex’ 2D ULCANS technology provides more persistent IR, thermal & counter-radar performance and offers a greater range of capabilities than known before. Fibrotex USA will deliver the material in reversible designs – allowing for the first time a different pattern and capability on each side, enabling soldiers, vehicles and systems to disappear into light/dark woodland, snow/alpine and desert/urban environments, blending into the terrain in all weather conditions, anywhere on the globe.

Fibrotex USA new Vertical manufacturing facility in KY will become the new Camouflage “home” and will provide a one-stop-shop for all solutions provided under one roof.

About Fibrotex USA Inc

Fibrotex USA helps save lives and improves operational effectiveness, developing world-class solutions through continuous analysis of contemporary conflicts, combining field experience with expertise in unique compounds, ergonomic engineering, and camouflage materials to provide full multispectral signature management solutions.

Fibrotex USA is headquartered in Washington, D.C. and is an owned subsidiary of the Fibrotex Technologies LTD (FTL). Fibrotex has been developing and manufacturing advanced camouflage systems for over 50 years, including multispectral static and mobile camouflage systems, from individual solutions to systems to cover all types of sizes of military platform.



Mobile Camouflage Solution

Other advanced signature management solutions include the 2D Static Camouflage System for high-value fixed locations and Mobile Camouflage Solution able to mask mobile platforms from all known visual, thermal-IR and radar sensors with no impact on their mobility or ability to fight.

The company has also created the innovative, multispectral ‘Kit Sophia’ rapidly configurable package enabling deployed forces to flexibly tailor their protection to a range of threats.

A similar solution, ‘Kit Noa’ was developed for individual soldier signature management. As an individual piece of equipment, the Personal Modular Camouflage system is ready-to-use, contained within a 2L bag for rapid deployment, increasing soldier survivability.

For more information please visit: www.fibrotexusa.com



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EXHIBIT 20C

Israel-Based Fibrotex USA Opens Manufacturing Complex in Sterns, Kentucky

Area Development News Desk (09/03/2019)

Israel-based Fibrotex USA, a supplier of next-generation military tent systems for the U.S. Department of Defense, allied international governments and private industry, opened its new vertical manufacturing facility, established through a partnership with Outdoor Venture Corp. and expected to create up to 350 full-time jobs via a \$12.1 million investment in Sterns, Kentucky.

Fibrotex USA was awarded a 10-year, \$480 million contract to supply Ultra-Lightweight Camouflage Net Systems (ULCANS) to the US Army. As a strategic subcontractor, OVC assisted Fibrotex USA in establishing a new manufacturing location in Sterns.

Leaders at the companies project creating 150 jobs at the new Fibrotex facility to manufacture material used in ULCAN and additional signature management technologies moving forward. The investment includes accommodation for a 200-job expansion at OVC's McCreary County operation. The ULCANS is a modular camouflage system used to conceal military equipment, facilities, troops and other assets in a wide variety of environments.

"Today more than ever, our troops are facing a near-peer enemy with capabilities that did not exist nor were in play for the last two decades," said Eyal Malleron, CEO of Fibrotex USA. "This new threat requires us to re-adopt and relearn camouflage, concealment and deception doctrines more than ever. We are excited provide this exact solution to the US Army via the ULCANS with the strategic assistance of OVC and the extraordinary workforce in Kentucky."

"This is an important long-term partnership that we are building in McCreary County to supply products directly to the Army," said JC Egnew, president and CEO of OVC. "I anticipate this friendship will far exceed the next decade."

"This exciting project will create substantial new economic opportunity in Southeast Kentucky, while also providing crucial, high-tech products for our nation's armed forces," Governor Matt Bevin said. "Outdoor Venture Corporation has been an integral part of McCreary County's industrial sector for more than 35 years, and it is great to see the company bring another great business to the region. We thank both OVC and Fibrotex USA for the vital work they do, and for their commitment to utilizing Kentucky's strong workforce to accomplish their mission."

To encourage the investment and job growth in the community, the Kentucky Economic Development Finance Authority (KEDFA) in December 2018 approved OVC for up to \$200,000 in tax incentives through the Kentucky Enterprise Initiative Act (KEIA) based on a \$12.1 million investment. KEIA allows approved companies to recoup Kentucky sales and use tax on construction costs, building fixtures, equipment used in research and development and electronic processing.

In addition, OVC can receive resources from the Kentucky Skills Network.

EXHIBIT 20D

Commonwealth of Kentucky

Cabinet for Economic Development

Matthew G. Bevin
Governor

Old Capitol Annex
300 West Broadway
Frankfort, KY 40601

Vivek Sarin
Interim Secretary

August 30th 2019
For Immediate Release
Woody Maglinger
502.564.2611

Gov. Bevin Cuts Ribbon on 350-Job Fibrotex USA Facility in Stearns
From McCreary County, company will supply camouflage netting products used by US Army

Jack Mazurak
502.782.1965

STEARNS, Ky. (Aug. 29, 2019) – Gov. Matt Bevin today joined Congressman Hal Rogers, local officials and executives from Fibrotex USA to cut the ribbon on the company's new vertical manufacturing facility, established through a partnership with Outdoor Venture Corp. (OVC) and expected to create up to 350 full-time jobs via a \$12.1 million investment.

"This exciting project will create substantial new economic opportunity in Southeast Kentucky, while also providing crucial, high-tech products for our nation's armed forces," Gov. Bevin said. "Outdoor Venture Corporation has been an integral part of McCreary County's industrial sector for more than 35 years, and it is great to see the company bring another great business to the region. We thank both OVC and Fibrotex USA for the vital work they do—and for their commitment to utilizing Kentucky's strong workforce to accomplish their mission."

Announced in October 2018, Fibrotex USA was awarded a 10-year, \$480 million contract to supply Ultra-Lightweight Camouflage Net Systems (ULCANS) to the US Army. As a strategic subcontractor, OVC assisted Fibrotex USA in establishing a new manufacturing location in Stearns. Leaders at the companies project creating 150 jobs at the new Fibrotex facility to manufacture material used in ULCAN and additional signature management technologies moving forward. The investment includes accommodation for a 200-job expansion at OVC's McCreary County operation. The ULCANS is a modular camouflage system used to conceal military equipment, facilities, troops and other assets in a wide variety of environments.

"Today more than ever, our troops are facing a near-peer enemy with capabilities that did not exist nor were in play for the last two decades," said Eyal Malleron, CEO of Fibrotex USA. "This new threat requires us to re-adopt and relearn camouflage, concealment and deception doctrines more than ever. We are excited provide this exact solution to the US Army via the ULCANS with the strategic assistance of OVC and the extraordinary workforce in Kentucky."

"This is an important long-term partnership that we are building in McCreary County to supply products directly to the Army," said JC Egnew, president and CEO of OVC. "I anticipate this friendship will far exceed the next decade."

Founded in Stearns in 1972, OVC is a prime supplier of next-generation military tent systems for the U.S. Department of Defense, allied international governments and private industry. The company got its start with commercial tent manufacturing, since expanding its product offering to include sleeping bags, military tents, hunting products, basecamp units, fire containment covers, mining chambers and automotive airbags. OVC operates four facilities in McCreary County, where the company employs 225 people.

For more than 50 years, Israel-based Fibrotex Technologies has developed and manufactured innovative signature management systems for armed forces and law enforcement around the world. Fibrotex USA manufactures customizable systems used by the US military, including lightweight, reversible textiles that prevent sensor detection including UV, visual, NIR, SWIR, thermal IR and radar.

As a senior member of the Defense Appropriations Subcommittee, US Rep. Hal Rogers worked to secure the resources for this and other vital initiatives that support American troops and jobs.

"Fibrotex is a perfect fit for Southern Kentucky. We have the best workforce in the country and a long history of faithful service to our military and our allied forces," said Congressman Rogers. "I take great pride in knowing that we are producing specialized equipment for the Army in McCreary County, and I believe this new partnership between Fibrotex USA and OVC will impact our

rural region for years to come. I applaud J.C. Egnew's perseverance to create jobs at OVC and extend greater opportunities to our incredible workforce."

Sen. Max Wise, of Campbellsville, said the investment is a significant marker of growth in the region.

"I am pleased to recognize Fibrotex USA for investing in our district with this historic expansion project affording McCreary County 350 jobs," Sen. Wise said. "Fibrotex USA is making a monumental impact in Kentucky's workforce and our military."

Rep. Ken Upchurch, of Monticello, noted the great work done by both companies.

"I'm thrilled to see Fibrotex follow in the footsteps of Outdoor Venture Corp. and invest in our community," Rep. Upchurch said. "Not only are we going to see a major impact from the 350 new jobs, but I think our community can have a big sense of pride in the fact that something we make here will be helping the men and women in our armed forces."

Nathan Nevels, deputy judge-executive and director of economic development in McCreary County, said the project will be a major boon for the local workforce.

"As our county's director of economic development, I am very excited about the influx of new job opportunities in Stearns," Nevels said. "We have a strong history of supporting our military's needs for tents and other equipment, and Fibrotex will complement these resources and provide added safety and concealability for our troops and their equipment. I consider it a huge honor that a company from Israel has chosen my home for their new production facility."

To encourage the investment and job growth in the community, the Kentucky Economic Development Finance Authority (KEDFA) in December 2018 approved OVC for up to \$200,000 in tax incentives through the Kentucky Enterprise Initiative Act (KEIA) based on a \$12.1 million investment. KEIA allows approved companies to recoup Kentucky sales and use tax on construction costs, building fixtures, equipment used in research and development and electronic processing.

In addition, OVC can receive resources from the Kentucky Skills Network. Through the Kentucky Skills Network, companies can receive no-cost recruitment and job placement services, reduced-cost customized training and job training incentives.

To learn more about Outdoor Venture Corp. at www.OutdoorVenture.com. For more information on Fibrotex USA, visit www.FibrotexUSA.com.

A detailed community profile for McCreary County can be viewed [here](#).

EXHIBIT 21

EXHIBIT 21A

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

VALLEY GAS, INC. REQUEST FOR)	
APPROVAL OF A SPECIAL CONTRACT)	CASE NO.
WITH MAGO CONSTRUCTION COMPANY)	2014-00368
AND A DEVIATION FROM THE GAS COST)	
ADJUSTMENT CLAUSE)	

ORDER

On October 3, 2014, Valley Gas, Inc. (“Valley Gas”) submitted for approval a special contract with Mago Construction Company (“Mago”) and requested confidentiality for Articles 2 and 4 of the contract and a deviation pursuant to 807 KAR 5:011, Section 15, from its Gas Cost Adjustment Clause (“GCA”).

In its filing, Valley Gas states that Mago produces asphalt for road construction and has heretofore utilized other fuels for its production. Mago has procured additional projects which will require an increase in production. Consequently, Mago and Valley Gas entered into a contract for the construction of a 6-inch line to serve Mago. The line will cost an estimated \$200,000 and will provide non-interruptible natural gas service. Mago will reimburse Valley Gas for the entire cost of the pipeline extension, which will then be owned by Valley Gas.

Valley Gas will procure natural gas to serve Mago from its supplier, Constellation Energy (“Constellation”). As the gas will be sourced under a separate contract with Constellation solely to serve Mago, Valley Gas requests a deviation from its GCA so as to exclude the cost of Mago’s gas supply from recovery through Valley Gas’s GCA

mechanism. Mago will pay Valley Gas for the cost of the gas purchased from Constellation, in addition to a fixed transportation rate for delivering the gas through its system. The calculation of the rate billed to Valley Gas's incumbent natural gas sales customers through its GCA will not be affected by the separate purchase of gas supply for Mago.

Finally, Valley Gas requests confidentiality of the contract term and the contracted gas price pursuant to KRS 61.878(1)(c)(1). Valley Gas states that the public disclosure of the information would create a price ceiling in future contract negotiations. It therefore requests that the information be afforded confidential protection for a period of five years.

Subsequent to the instant filing for approval of the special contract through the Commission's electronic Tariff Filing System, Valley Gas responded to questions from Commission Staff, via e-mail, a redacted copy of which is attached hereto as an Appendix. In its responses, Valley Gas stated that the line will be 8,000 feet in length and will be operated at a pressure of 120 pounds per square inch. Mago will utilize approximately 150 dekatherms each day between April and November and a total of 20,000 dekatherms on an annual basis. Valley Gas states that its existing average annual sales volume is 33,000 Mcf.

Pursuant to 807 KAR 5:011, Section 13, special contracts that establish rates, charges, or conditions of service are subject to the Commission's approval.

Valley Gas has not requested a Certificate of Public Convenience and Necessity ("CPCN"). However, a special contract is not necessarily exempt from the CPCN requirement iterated in KRS 278.020(1), which provides:

No person, partnership, public or private corporation, or combination thereof shall commence providing utility service to or for the public or begin the construction of any plant, equipment, property, or facility for furnishing to the public any of the services enumerated in KRS 278.010, except retail electric suppliers for service connections to electric-consuming facilities located within its certified territory and ordinary extensions of existing systems in the usual course of business, until that person has obtained from the Public Service Commission a certificate that public convenience and necessity require the service or construction.

The Commission has also adopted a regulation, 807 KAR 5:001, Section 15(3), which defines “ordinary extensions” that do not require a CPCN as follows:

Extensions in the ordinary course of business. A certificate of public convenience and necessity shall not be required for extensions that do not create wasteful duplication of plant, equipment, property, or facilities, or conflict with the existing certificates or service of other utilities operating in the same area and under the jurisdiction of the commission that are in the general or contiguous area in which the utility renders service, and that do not involve sufficient capital outlay to materially affect the existing financial condition of the utility involved, or will not result in increased charges to its customers.

Pursuant to KRS 278.010(3), utility service includes “[t]he transporting or conveying of gas . . . by pipeline to or for the public, for compensation.” Valley Gas currently has a total gas plant in service of \$362,644.52,¹ so this proposed \$200,000 project represents a significant increase in the monetary value of its system. However, since the proposed project will be paid for exclusively by Mago, the cost will be recorded on the books of Valley Gas as a contribution and the cost will not increase the value of its gas plant in service as reflected on its balance sheet.

¹ *Annual Report of Valley Gas, Inc. to the Kentucky Public Service Commission for the Calendar Year Ended December 31, 2013* at 5.

Based on the evidence of record and being otherwise sufficiently advised, the Commission finds that the proposed construction is needed to serve Mago and will not result in wasteful duplication of facilities. Further, the construction will not result in increased rates to existing customers or involve sufficient capital outlay to materially affect the existing financial condition of Valley Gas. The substantial sales to Mago should serve to aid Valley Gas's financial condition and, according to Valley Gas, the project and contract will likely enable it to delay the filing of its next application for a rate increase.

For these reasons, the proposed construction qualifies under 807 KAR 5:001, section 15(3), as an extension in the ordinary course of business, and we find the construction to be exempt from the requirement of a CPCN under KRS 278.020(1). In addition, based upon a review of the information provided by Valley Gas, the Commission finds that the special contract with Mago is reasonable and should be approved as filed. However, the Commission notes that Valley Gas is still required to comply with all applicable safety standards for construction and operation as set out in Title 49 CFR Part 192 and 807 KAR 5:022.

While the requested deviation from the GCA requirements may result in the cost of Mago's gas being lower than Valley's weighted average cost of gas as calculated in its GCA applications, due to the increased sales and the consequent increased net earnings, Valley Gas has demonstrated that the contract will benefit its customers at large. As the special contract is likely to materially improve the financial condition of the utility, its ratepayers, and Mago, and will have no impact on Valley Gas's system average cost of gas as it is currently calculated, Valley Gas has demonstrated good

cause to grant a deviation from its GCA. Valley Gas may exclude the cost of natural gas procured from Constellation solely for the benefit of Mago from its GCA filings for the life of the special contract or until as otherwise ordered by the Commission.

Finally, pursuant to 807 KAR 3:001, Section 13, Valley Gas requested confidentiality of certain portions of the special contract. In its letter, which the Commission will treat as a motion, Valley Gas requests confidential protection for the contract term and price provisions of the special contract for a period of five years. It states that public disclosure of the information would impair its ability to negotiate future contracts.

The Commission finds that the terms of the special contract for which Valley Gas has requested confidential protection are exempted from public disclosure pursuant to KRS 61.878(1)(c)(1). Additionally, the Commission finds on its own motion that the contract rate which is identified in question 7 in the Appendix is entitled to confidential protection pursuant to KRS 61.878(1)(c)(1).

IT IS THEREFORE ORDERED that:

1. The Agreement between Valley Gas and Mago is reasonable and should be approved.
2. Valley Gas's request for a deviation from its GCA is granted.
3. Valley Gas shall exclude from its GCA the cost of natural gas purchased from Constellation for Mago in accordance with the terms of the special contract.
4. Valley Gas's request for confidentiality is granted.

5. The materials for which Valley Gas seeks confidential treatment shall not be placed in the public record or made available for public inspection for a period of five years pursuant to the exceptions under KRS 61.878(1)(c)(1).

6. The rate in question 7 in the Appendix shall not be placed in the public record or made available for public inspection for a period of five years pursuant to the exceptions under KRS 61.878(1)(c)(1).

7. Use of the materials granted confidentiality in this proceeding shall be in compliance with 807 KAR 5:001, Section 13(9).

8. Valley Gas shall inform the Commission if the materials granted confidentiality become publicly available or no longer qualify for confidential treatment.

9. If a non-party to this proceeding requests to inspect materials granted confidential treatment by this Order and the period during which the materials have been granted confidential treatment has not run, Valley Gas shall have 20 days from receipt of written notice of the request to demonstrate that the materials still fall within the exclusions from disclosure requirements established in KRS 61.878. If Valley Gas is unable to make such demonstration, the requested materials shall be made available for inspection.

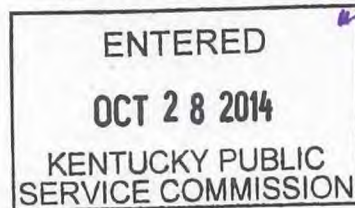
10. Valley Gas shall construct the facilities required to serve Mago to meet all applicable requirements as set out in Title 49 CFR Part 192 and 807 KAR 5:022.

11. Valley Gas shall ensure the facilities are constructed by individuals qualified to perform the type of work as proposed.

12. Valley Gas shall notify the Commission one week prior to the actual start of construction, at the 50 percent completion point, and when the construction is complete.

13. Any documents filed pursuant to ordering paragraph 8 of this Order shall reference the number of this case and shall be retained in the utility's post case reference file.

By the Commission



ATTEST:



Executive Director

APPENDIX

APPENDIX TO AN ORDER OF THE KENTUCKY PUBLIC SERVICE
COMMISSION IN CASE NO. 2014-00368 DATED **OCT 28 2014**

PSC - Tariffs

From: Kerry Kasey <igenergy@bbtel.com>
Sent: Tuesday, October 07, 2014 12:34 PM
To: PSC - Tariffs
Subject: RE: Valley Gas Contract Filing
Attachments: VALLEYGAS.pdf

1. 8,000'
2. Taping line at the intersection of Highway #79 and Highway #477 following Highway #477 on the right side of the road on personal property.
3. 6" Plastic High Den 120 psi pipe.
4. **150 dekatherm estimate daily only during April –November, 20,000 dekatherms annual estimate.**
5. Mago will be paying by Check or Electronic Funds Transfer for the entire installation.
6. No financing for the project will be done by Valley Gas.
7. If Mago buys any gas from Valley Gas the rate will be at Valley's regular tariff rates.
8. No other improvements are necessary to provide Mago with service.

Kerry R Kasey
VALLEY GAS, INC.
401 S 1ST STREET
IRVINGTON, KY, 40146
270/547-2455
igenergy@bbtel.com

From: PSC - Tariffs [<mailto:psc.tariffs@ky.gov>]
Sent: Monday, October 06, 2014 7:22 AM
To: igenergy@bbtel.com
Subject: Valley Gas Contract Filing

Mr. Kasey,

Staff has requested additional information regarding the special contract with Mago Construction Company that was filed on October 3.

1. Provide the length of the proposed pipeline to serve Mago.
2. Provide the route of the proposed pipeline, showing its location on a map indicating its interconnection with Valley's existing system.
3. Describe the design and capacity of the proposed 6" pipeline.
4. Provide the expected daily and annual load represented by the Mago contract.
5. Describe the manner in which Mago will fund the \$200,000 pipeline construction cost.
6. Confirm that Valley Gas will not be providing financing for the pipeline construction cost.
7. State whether Mago will pay any other rate or charge in addition to the _____ per Mcf rate and the gas cost.
8. Are any improvements required within the existing Valley Gas system to provide service to the proposed pipeline and Mago?

You can e-mail your responses to psc.tariffs@ky.gov.

If you have any questions, please give us a call at (502) 564-3940 or respond to this e-mail.

Thanks.

Daniel

EXHIBIT 21B

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE FILING OF A SPECIAL CONTRACT BY) CASE NO.
NATURAL ENERGY UTILITY CORPORATION) 2018-00164

ORDER

On May 1, 2018, pursuant to 807 KAR 5:011, Section 13, Natural Energy Utility Corporation (NEUC) filed with the Commission a Gas Service Agreement (Agreement) with a new industrial customer and requested Commission approval of the Agreement. The Commission issued an Order on May 30, 2018, indicating that further proceedings were necessary to determine the reasonableness of the Agreement. Pursuant to KRS 278.190(2), the May 30, 2018 Order also suspended the effective date of the Agreement for five months up to and including October 31, 2018. In order to facilitate the review, the Commission issued a procedural schedule on June 7, 2018.

Columbia Gas of Kentucky (Columbia Kentucky) filed a Motion to Intervene on June 15, 2018, and NEUC submitted a response objecting to the intervention request on June 20, 2018. Based upon the factual representations made by NEUC in its response, Columbia Kentucky filed a Motion to Withdraw Motion for Intervention (Motion to Withdraw) without prejudice on June 27, 2018.

BACKGROUND

NEUC is a Kentucky corporation with its principal place of business located in Ashland, Kentucky that distributes and sells natural gas in Boyd, Greenup, and Carter

counties in Kentucky.¹ Pursuant to KRS 278.010(3)(b), NEUC is a utility regulated with the Commission. According to the Agreement, all of the natural gas pipelines and facilities necessary to serve the new industrial customer are currently in place; however, due to the volume of gas that the customer will potentially require and the necessary relocation of a delivery point, NEUC will need to install and upgrade certain facilities to accommodate the increased volumes.² NEUC requests confidential treatment of the identity of the customer, contract rates and terms and conditions of service, a map of the proposed project, and certain other information contained in the Agreement.³

DISCUSSION AND FINDINGS

In support of the Agreement, NEUC states that the new industrial customer will pay for 100 percent of the proposed project.⁴ NEUC further contends that the rates to its other customers will not be affected because the special contract rate will cover all variable costs and contribute to fixed costs.⁵ While the Commission cannot divulge the confidential terms of the Agreement, NEUC has submitted information demonstrating that the Agreement and associated rates and terms as proposed: (1) cover the cost of the proposed project as well as the on-going costs to serve the customer; (2) do not adversely impact the rates of other customers; and (3) will enable gas service to be provided to a

¹ *Annual Report of Natural Energy Utility Corporation to the Public Service Commission for the Year Ended December 31, 2017*, at 4.

² NEUC's Special Contract (filed May 1, 2018); NEUC's Response to Commission Staff's First Request for Information (Staff's First Request), (filed June 27, 2018), Item 1(a).

³ TFS No. 2018-00207 (Ky. PSC filed May 1, 2018). Pursuant to 807 KAR 5:001, Section 13(3)(c), the Commission issued a letter approving NEUC's Petition for Confidentiality on June 8, 2018.

⁴ NEUC's Response to Staff's First Request, Item 1(d).

⁵ NEUC's Response to Staff's First Request, Item 2.

new industrial customer that is located upon property that was formerly occupied by an NEUC customer.

NEUC asserts in its cover letter that a certificate of public convenience and necessity (CPCN) is not required for the proposed project associated with the Agreement, and therefore NEUC did not file an application for a CPCN or request a declaratory order finding that a CPCN is not required. NEUC further states that if the associated construction does, in fact, require a CPCN then to please advise of the same.

Based on NEUC's filing and being otherwise sufficiently advised, the Commission finds that filing a cover letter asking to be advised if a project requires a CPCN is not proper procedure, and should not be repeated, as it does not formally place the CPCN issue before the Commission for a ruling. In future filings, if NEUC desires to obtain a ruling from the Commission as to whether a CPCN is required for a specific project, then NEUC should formally present such issue to the Commission for our consideration and determination by filing a request for a declaratory order or an application for a CPCN. Even though the CPCN issue is not properly before the Commission, due to the fact that the proposed project is an integral part of the Agreement with the new customer, and sufficient information has been obtained to render a ruling, we will do so in order to achieve efficiency and avoid a delay in NEUC's service to a new customer.

KRS 278.020(1) provides in relevant part:

No person, partnership, public or private corporation, or combination thereof shall commence providing utility service to or for the public or begin the construction of any plant, equipment, property, or facility for furnishing to the public any of the services enumerated in KRS 278.010, except . . . ordinary extensions of existing systems in the usual course of business . . . until that person has obtained from the Public

Service Commission a certificate that public convenience and necessity require the service or construction.

An extension in the ordinary course of business is defined by 807 KAR 5:001

Section 15(3) as:

Extensions that do not create wasteful duplication of plant, equipment, property, or facilities, or conflict with the existing certificates or service of other utilities operating in the same area and under the jurisdiction of the commission that are in the general or contiguous area in which the utility renders service, and that do not involve sufficient capital outlay to materially affect the existing financial condition of the utility involved, or will not result in increased charges to its customers.

NEUC argues that the proposed project associated with the Agreement falls within the extension in the ordinary course of business exception due to the following: (1) based upon the terms of the Agreement there will be no financial impact on current operations of the company;⁶ (2) the new industrial customer will pay for 100 percent of the proposed project so there will be no impact on NEUC's debt;⁷ (3) the project will constitute less than 1 percent of NEUC's current plant in service;⁸ (4) there will be no increase in charges to NEUC's other customers;⁹ and (5) the project will not compete with the facilities of existing public utilities because NEUC has served customers on the subject property since 1987.¹⁰

⁶ NEUC's Response to Staff's First Request, Item 5.

⁷ NEUC's Response to Staff's First Request, Item 1(d).

⁸ NEUC's Response to Staff's First Request, Item 5.

⁹ *Id.*

¹⁰ *Id.*

In assessing whether a proposed project is a system extension in the ordinary course of business, Kentucky courts have traditionally looked to the size and scope of a project in the context of the monetary cost involved. The Commission has similarly adopted this method and likewise looks to the scale of a proposed project in relation to the relative size of the utility and its present facilities. The proposed method of financing a project is not necessarily determinative of whether a project requires a CPCN, and the Commission also looks to whether the facilities would result in wasteful duplication, compete with existing facilities, or involve sufficient capital to affect the utility's financial condition materially.

Pursuant to the Agreement, the new industrial customer will pay 100 percent of the proposed construction project costs. The Uniform System of Accounts requires customer contributions to be recorded as a credit to the cost of construction of the gas plant, so the plant construction funded by those contributions will not be recovered from NEUC's other customers.¹¹ Therefore, the proposed project will not materially affect the utility's existing financial condition and will not require an adjustment of its rates. Further, the associated project would not result in wasteful duplication or compete with existing facilities since NEUC has exclusively served customers on the subject property since 1987. Consequently, the proposed construction is an improvement to its existing system that may properly be considered an extension in the ordinary course of business.

Having reviewed the evidentiary record and being otherwise sufficiently advised, the Commission finds that the Agreement should be approved and that based upon the

¹¹ Uniform System of Accounts Prescribed for Natural Gas Companies Subject to the Provisions of the Natural Gas Act, Gas Plant Instructions, 2. *Gas plant to be recorded at cost, D.*

information provided by NEUC, the associated project constitutes an extension in the ordinary course of business, and therefore, does not require prior CPCN approval.

IT IS THEREFORE ORDERED that:

1. NEUC's Agreement is approved as filed.
2. Columbia Kentucky's Motion to Withdraw is granted.

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By the Commission

ENTERED
SEP 06 2018
KENTUCKY PUBLIC
SERVICE COMMISSION

ATTEST:



Executive Director

EXHIBIT 21C

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF LOUISVILLE)	
GAS AND ELECTRIC COMPANY FOR A)	CASE NO.
CERTIFICATE OF PUBLIC CONVENIENCE)	2017-00195
AND NECESSITY FOR THE CONSTRUCTION)	
OF AN ELECTRIC TRANSMISSION LINE)	

ORDER

On June 16, 2017, Louisville Gas and Electric Company (“LG&E”) filed an application for a Certificate of Public Convenience and Necessity (“CPCN”) for the relocation and construction of an approximately 6,000-foot, 138-kilovolt (“kV”) electric transmission line located on Waste Management of Kentucky, LLC’s (“Waste Management”) property in Jefferson County, Kentucky. LG&E filed the application at the request of Waste Management. The stated purpose of the line relocation and construction is to allow a landfill expansion that would permit Waste Management to operate and accept waste deliveries at the Outer Loop Landfill for several additional years.¹ The cost of constructing and relocating the electric transmission line is approximately \$9,025,000.² The cost of operation is expected to be *de minimus*.³ The proposed project will be funded by Waste Management.

In a footnote in the application, LG&E stated that it would be moving a gas transmission line as part of this project. LG&E asserts that no CPCN is necessary for

¹ Application at 2.

² LG&E’s Response to Staff’s First Request for Information (“Staff’s First Request”), Item 5.

³ *Id.*, Item 6.

this portion of the project because it is an ordinary extension in the usual course of business and therefore does not require a CPCN or a declaratory ruling that the project is an ordinary extension in the usual course of business.⁴ As a basis for LG&E's assertion, it states that the relocation of the existing gas line will serve a current customer, does not involve sufficient capital outlay to materially affect LG&E's existing financial condition, and will not result in increased charges to customers.⁵ LG&E states that it is relocating the gas line at the request of Waste Management and that Waste Management is funding the total cost of \$3,865,000, with the exception of \$520,000, which LG&E will incur to increase the diameter of the gas pipe being relocated.⁶

LG&E requested a decision from the Commission by September 15, 2017, in its application.⁷ On July 11, 2017, the Commission entered an Order setting out a procedural schedule. Waste Management filed a motion to intervene on July 14, 2017, which the Commission granted on August 8, 2017. Staff filed the First Request for Information on July 17, 2017, and LG&E filed its response on July 25, 2017. On August 11, 2017, LG&E filed a statement requesting that the matter be submitted for a decision based on the existing record. The matter now stands submitted to the Commission for a decision on the evidentiary record.

BACKGROUND

LG&E, a utility engaged in the transmission and distribution of electricity and gas and incorporated in Kentucky, is seeking a CPCN to construct a 138-kV transmission

⁴ *Id.*, Item 2.a.

⁵ *Id.* at Item 2.a.–b.

⁶ Application at 2 and Response to Staff's First Request for Information, Item 5.a.

⁷ Application at 6.

line, approximately 6,000 feet in length, on Waste Management's property. The project would relocate an existing electric transmission line that runs through Waste Management's recycling and disposal facility on the Outer Loop Landfill. Waste Management requested that the line be relocated in order for Waste Management to operate and accept waste deliveries at the Outer Loop Landfill for several additional years. LG&E asserted that without the line relocation, Waste Management would have to prematurely close the Outer Loop Landfill, and that Waste Management would fund the entire cost of relocating the electric transmission line. LG&E also plans to move a gas pipeline at the request of Waste Management, but did not request a CPCN, asserting that the gas pipeline relocation is an ordinary extension in the usual course of business, and thus is exempt from the requirement to request a CPCN for the project.

LG&E states that it has explored several alternatives to relocating the electric line. First, LG&E could have refused to relocate the line because it is located within private easements. However, because Waste Management is agreeing to assume the cost of the entire project, there would be no net cost to LG&E and relocation of the electric line would allow LG&E to continue to serve the needs of Waste Management without negatively affecting other customers. It would also benefit the community by extending the life of the Outer Loop Landfill and preventing increased waste removal costs that would result from the premature closure of the landfill.

Second, LG&E considered but rejected an alternate route because the alternate route would have required construction of a longer transmission line, resulting in more energy transmission losses and greater maintenance costs. In addition, part of the alternate route was designated as wetlands, which could have resulted in permitting

problems and increased environmental risks. Therefore, LG&E determined that the proposed route was the preferred route for the relocated transmission line.

DISCUSSION

KRS 278.020(2) states that construction of any electric transmission line of 138 kV or more and of more than 5,280 feet in length shall not be considered an ordinary extension of an existing system in the usual course of business and shall require a CPCN.

To establish the requirement of public convenience and necessity, an applicant must demonstrate the need for the proposed facilities and that the proposed construction will not result in the wasteful duplication of facilities.⁸

“Need” requires:

[A] showing of a substantial inadequacy of existing service, involving a consumer market sufficiently large to make it economically feasible for the new system or facility to be constructed and operated.

[T]he inadequacy must be due either to a substantial deficiency of service facilities, beyond what could be supplied by normal improvements in the ordinary course of business; or to indifference, poor management or disregard of the rights of consumers, persisting over such a period of time as to establish an inability or unwillingness to render adequate service.⁹

“Wasteful duplication” is defined as “an excess of capacity over need” and “an excessive investment in relation to productivity or efficiency, and an unnecessary

⁸ *Kentucky Utilities Company v. Public Service Commission*, 252 S.W.2d 885 (Ky. 1952).

⁹ *Id.* at 890.

multiplicity of physical properties.”¹⁰ To demonstrate that the proposed construction does not result in wasteful duplication, we have held that the applicant must demonstrate that a thorough review of all reasonable alternatives has been performed.¹¹ Selection of a proposal that ultimately costs more than an alternative does not necessarily result in wasteful duplication.¹² All relevant factors must be balanced.¹³ The statutory touchstone for ratemaking in Kentucky is the requirement that the rates set by the Commission must be fair, just and reasonable.¹⁴

The Commission finds that LG&E has established sufficient evidence to demonstrate that the proposed construction and relocation of the electric transmission line is needed and avoids wasteful duplication. By moving the transmission line, LG&E can continue to provide service to Waste Management without a negative impact on other customers. Additionally, relocating the transmission line prevents premature closure of the Outer Loop Landfill, with the resulting increase in waste removal costs for the community.

There is no duplication of services in the proposed project. LG&E is moving an electric transmission line from one location on the property of Waste Management to another. There is also no net cost to LG&E in the relocation of the transmission line, as

¹⁰ *Id.*

¹¹ Case No. 2005-00142, *Joint Application of Louisville Gas and Electric Company and Kentucky Utilities Company for a Certificate of Public Convenience and Necessity for the Construction of Transmission facilities in Jefferson, Bullitt, Meade, and Hardin Counties, Kentucky* (Ky. PSC Dec. 8, 2005).

¹² See *Kentucky Utilities Co. v. Pub. Serv. Comm’n*, 390 S.W.2d 168, 175 (Ky. 1965). See also Case No. 2005-0089, *Application of East Kentucky Power Cooperative, Inc. for a Certificate of Public Convenience and Necessity for the Construction of a 138 kV Electric Transmission Line in Rowan County, Kentucky* (Ky. PSC Aug. 19, 2005), final Order.

¹³ Case No. 2005-00089, *East Kentucky Power Cooperative, Inc.*, final Order at 6.

¹⁴ KRS 278.030(1).

the project is being done at the request of Waste Management and is being funded by Waste Management. Finally, it appears that LG&E has reviewed all reasonable alternatives in arriving at the proposed route for relocation of the transmission line.

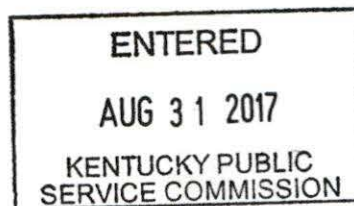
In regard to the relocation of the gas pipeline, the Commission is concerned that LG&E provided the Commission notice of the relocation of the gas transmission line in a footnote in the application in which LG&E concludes that no CPCN was necessary because the relocation was an ordinary extension in the usual course of business.¹⁵ LG&E did not provide any basis to support its conclusion or request a declaratory ruling. In the future, the Commission expects that LG&E will, at a minimum, set forth in sufficient detail the basis to support a determination that a project is an ordinary extension in the usual course of business and does not require a CPCN rather than making an unsupported conclusion. Here, through data requests, the Commission was able to obtain sufficient information to find that the relocation of the gas pipeline is properly classified as an ordinary extension of an existing system in the usual course of business, and, pursuant to KRS 278.020(1), a CPCN is not required for its relocation and construction. Because the proposed project will relocate an existing facility, it will not be a wasteful duplication of plant, equipment, property, or facilities. Waste Management will fund all but \$500,000 of the relocation and construction costs. Therefore, the total capital investment in this project will not materially affect the financial condition of LG&E or result in increased charges to customers.

¹⁵ Application at 2, Footnote 1.

IT IS HEREBY ORDERED that:

1. LG&E is granted a CPCN to relocate, construct, and operate approximately 6,000 feet of 138-kV electric transmission line on the property of Waste Management as set forth in its application.
2. The proposed relocation and construction of the gas pipeline on the property of Waste Management as set forth in the application is properly classified as an ordinary extension of an existing system in the usual course of business and no CPCN is required.
3. LG&E shall file a survey of the final location of the relocation of the electric transmission line if there are any proposed modifications before construction begins.
4. LG&E shall file "as built" drawings or maps within 60 days of the completion of the construction of the electric transmission line authorized by this Order.
5. Future applications filed by LG&E containing references to construction projects being exempt from the CPCN requirements under KRS 278.020(1) shall include sufficient details to demonstrate the exemption.

By the Commission



ATTEST:


Acting Executive Director

EXHIBIT 21D

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF HARDIN COUNTY WATER)	
DISTRICT NO. 1 FOR A DECLARATORY)	
ORDER THAT PROPOSED WATERWORKS)	
IMPROVEMENTS TO MAINTAIN ADEQUATE)	
AND RELIABLE WATER SERVICE TO THE)	CASE NO.
FORT KNOX MILITARY INSTALLATION DO)	2019-00067
NOT REQUIRE A CERTIFICATE OF PUBLIC)	
CONVENIENCE AND NECESSITY)	

ORDER

On February 26, 2019, Hardin County Water District No. 1 (Hardin District No. 1) submitted an application pursuant to 807 KAR 5:001, Section 19, for a declaratory order that certain proposed capital improvements to the water treatment and distribution facilities at the Fort Knox Military Installation (Fort Knox) do not require a Certificate of Public Convenience and Necessity (CPCN). No party has requested to intervene in this matter. A representative from Fort Knox provided a letter, which Hardin District No. 1 submitted with its application, indicating that Fort Knox agrees that the projects at issue are necessary and, as proposed, would be funded by the United States Government (Government).¹ Hardin District No. 1 responded to one request for information from Commission Staff on May 8, 2019, and supplemented its responses on May 16, 2019.

¹ Addison, Kevin, *Letter Re: Fort Knox ISDC Projects* (dated Feb. 22, 2019) (attached as an exhibit to the Application at p. 129 of 130).

Hardin District No. 1's application for a declaratory order is now before the Commission for a decision.²

BACKGROUND

Hardin District No. 1 is a water district organized pursuant to KRS Chapter 74 that owns and operates facilities that produce and distribute water to the public in portions of Breckinridge, Hardin, and Meade counties.³ Hardin District No. 1 provides retail service to over 10,000 customers in Hardin County, Kentucky and provides wholesale water service to Meade County Water District and the cities of Vine Grove and Hardinsburg. Hardin District No. 1 also provides sanitary sewer service to approximately 8,814 retail customers in Hardin County, Kentucky.⁴ Hardin District No. 1 also provides water service to Fort Knox pursuant to special contract it entered with the Defense Logistics Agency (DLA) on September 30, 2011 (hereinafter the Contract) and provides sewer service to Fort Knox pursuant to a separate contract.⁵

Under terms of the September 30, 2011 contract with DLA, Hardin District No. 1 agreed to provide "potable water utility services" to the Fort Knox Military Installation, and the Government transferred "all rights, title and interest" in its potable water utility system at Fort Knox to Hardin District No. 1 in consideration for the payment of \$8,903,000.00, payable over a ten-year period at an annual interest rate of three percent per annum. In

² See 807 KAR 5:001, Section 19 (7) (indicating that the Commission may dispose of an application for a declaratory order based solely on the basis of the written application and any response thereto); 807 KAR 5:001, Section 19 (1) (indicating that the Commission "may" issue a declaratory order upon application).

³ Application at p. 2.

⁴ *Id.*

⁵ *Id.* at 3-5.

lieu of making monthly payments for the purchase price, the Contract required Hardin District No. 1 to credit the Government's monthly bill in the amount of \$85,968.00 for ten years following the purchase. However, the Contract simultaneously created a monthly Purchase Price Recovery Surcharge in the amount of \$85,968.00 for ten years to compensate Hardin District No. 1 for the purchase cost of the water system, which would be offset by the credit discussed above.

The Contract provides for a monthly utility service charge to cover Hardin District No. 1's operation and maintenance expenses and the cost of renewals and replacements for the water system at Fort Knox.⁶ It requires Hardin District No. 1 to maintain separate accounting for amounts used to provide service to Fort Knox. It requires Hardin District No. 1 to routinely compare the accumulation of the "costs invested in owning and operating the Fort Knox potable water utility, plus G&A costs" against revenues received from the Fort Knox monthly utility service charge.⁷ The Contract then provides:

If HCWD1 collects excess funds on its rate charges, the excess funds will remain within the separate account for future use on the Fort Knox potable water utility system only. When total revenue requirements are higher than current rates, HCWD1 will request a rate adjustment.⁸

The Contract indicates that rate adjustments shall be subject to the jurisdiction of the Commission in accordance with FAR 52.241-7: *Changes in Rates or Terms and Conditions of Service for Regulated Services*.⁹

⁶ Contract at B.2.2.1.

⁷ Contract at Preamble.

⁸ *Id.*

⁹ Contract at G.4; I.5.3.

The Contract identified Initial System Deficiency Corrections (ISDC), which were defined as projects “necessary to reach the standards typically maintained by the [Hardin District No. 1] on its utility systems so that subsequent renewals and replacements will permit the longterm safe and reliable operation of the utility system.”¹⁰ The Contract specifically enumerated the ISDCs to be completed and required Hardin District No. 1 to complete them within five years of executing the Contract.¹¹ The Contract provided for an Initial System Deficiency Corrections Surcharge (ISDC Surcharge) in the amount of \$473,831.00 to be charged each month for 60 months following the execution of the Contract,¹² although that charge was lowered to \$399,792.35 after 20 months.¹³ Hardin District No. 1 has collected \$25,464,714.00 through the ISDC Surcharge and has \$17,787,821.00 remaining from the ISDC Surcharge.¹⁴ The Contract indicated that the purpose of the ISDC Surcharge was to fund the ISDCs and the amount of the surcharge was based on the estimated costs of the ISDCs.

After Hardin District No. 1 entered into the Contract, Department of Defense (DoD) officials expressed concerns regarding water pressure, water taste, and general water quality.¹⁵ In response to those concerns, Hardin District No. 1 retained Stantec

¹⁰ Contract at C11.2 (defining ISDCs); *see also* Contract at B.5 (identifying specific ISDCs to be completed and their estimated cost).

¹¹ Contract at B.5 (identifying specific ISDCs to be completed and their estimated cost); Contract at C11.2 (stating that the ISDCs need to be completed with 5 years of the contract start date).

¹² Contract at B.3 (providing the amount, period, and term of the ISDC Surcharge).

¹³ Contract Amendment/Modification No. 00033 (dated February 1, 2017) (produced as part of Hardin District No. 1’s response to Commission Staff’s First Request for Information, Item 1).

¹⁴ Hardin District No. 1’s response to Commission Staff’s First Request for Information (Staff’s First Request), Item 6.

¹⁵ Application at p. 5.

Consulting Services, Inc. (Stantec), to perform hydraulic and water quality modeling and to develop a capital improvements plan designed to address the concerns of the DoD officials.¹⁶ Hardin District No. 1 provided the results of that study and a capital improvements plan to the Government in 2015, and the Government requested that Hardin District No. 1 submit a proposal for modifications to the initial plan.¹⁷ On September 4, 2015, Hardin District No. 1 submitted a Technical Proposal Submittal, which reported the results of its studies and proposed capital improvement projects to be substituted for ISDCs that had not yet been commenced.¹⁸ Following additional negotiations with the Government, Hardin District No. 1 submitted a final version of the proposal on June 1, 2016, which was accepted by the Government and executed as an amendment to the Contract on August 10, 2016 (2016 Amendment).¹⁹

The 2016 Amendment eliminated a number of ISDC projects as proposed and substituted 17 capital improvement projects.²⁰ The substitute capital improvement projects and the estimated costs of projects as shown in the amendment are below:

Project No.	Project Names	Estimated Cost
1.	Muldraugh WTP Improvements	\$4,845,000.00
2.	1.5 MG Old Ironsides Tank	\$5,054,000.00
3.	1.5 MG Education Center Tank	\$5,060,000.00
4.	Park Road 14' Main Extension	\$290,000.00
5.	Automatic Flusher Installed in Dietz Area	\$13,000.00
7.	Line Improvements—North Frazier Area	\$30,000.00
8.	Line Improvements—7th Armor Division Cut Off Road	\$143,000.00

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ Application at pg. 5–6; *see also* Contract Amendment/Modification No 00029.

²⁰ Contract Amendment/Modification No. 00029 (dated August 10, 2016).

9.	Decommission Central WTP and Large Diameter Mains	\$322,000.00
10.	Installation of Check Valves New Education Center Tanks	\$70,000.00
11.	Remove Frazier Tank	\$76,000.00
12.	Remove Van Voorhis Tank	\$60,000.00
13.	Remove Prichard Tank	\$76,000.00
14.	Automatic Flusher Installed in Dietz Area	\$13,000.00
15.	Automatic Flusher Installed in Prichard Area	\$13,000.00
16.	Remove HRC Tank	\$76,000.00
17.	Remove Fort Knox High School Tank	\$76,000.00
18.	Remove Old Ironside Tank	\$76,000.00
TOTAL		\$16,293,000.00 ²¹

The 2016 Amendment also indicated that \$12,208,104.00 in proceeds from the ISDC Surcharge that had previously been collected by Hardin District No. 1 for the projects designated as ISDCs would be reallocated toward completion of the projects agreed to in the amendment.²² The amendment stated that the rest of the \$16,293,000.00 cost for the new projects would be drawn from available funds in Hardin District No. 1's Fort Knox Water Fund Reserve.²³ The amendment provides that "[n]o additional funding is required for the modification" and states that the amendment did not affect the amount obligated under the Contract or the total value of the Contract.²⁴

However, Hardin District No. 1 acknowledged that the \$16,293,000.00 estimate for the projects shown in the 2016 Amendment is no longer valid. Specifically, Hardin District No. 1 has since obtained bids for construction that were below the estimated costs for the

²¹ *Id.*

²² *Id.*

²³ *Id.*

²⁴ *Id.*

two projects with the highest estimated cost in the 2016 Amendment.²⁵ The 2016 Amendment estimated the construction costs for the two water tanks to be \$8,814,833.00, whereas Hardin District No. 1's engineer has recommended that it accept bids for the construction of both projects in the total amount of \$5,555,000.00, which results in a reduction in the estimated costs of the capital projects in the amount of \$3,309,833.00.

Conversely, Hardin District No. 1 acknowledged a significant increase in the estimated cost of the Muldraugh WTP Improvements project from \$4,845,000 in the 2016 Amendment to a current range of \$8,000,000 to \$13,000,000.²⁶ Hardin District No. 1 indicated that the cost of the Muldraugh WTP Improvements project increased because Hardin District No. 1 determined that additional work was necessary on the Muldraugh WTP.²⁷ Hardin District No. 1 explained that a detailed evaluation of the Muldraugh WTP was unavailable at the time of the 2016 Amendment.²⁸ Hardin District No. 1 identified a "few" of the new improvements to the Muldraugh WTP that it determined were "either necessary or highly desirable to meet the intent of the project."²⁹ However, it indicated that a final determination as to which improvements will be made as part of the Muldraugh WTP Improvements project will be determined at a later date based on the availability of

²⁵ See Hardin District No. 1's Supplemental Response to Staff's First Request, Item 8 (showing that Hardin District No. 1 obtained four bids from construction contractors ranging from \$5,555,000.00 to \$7,295,000.00 for construction of the two water tanks); Firm Fixed Price Proposal Submittal (dated June 1, 2016) at Table 3, *attached as exhibit to Application* (indicating that the estimated construction costs for the two water tanks were \$8,814,833.00).

²⁶ See Hardin District No. 1's Supplemental Response to Staff's First Request, Item 8.

²⁷ *Id.*

²⁸ *Id.*

²⁹ *Id.*

funds.³⁰

DISCUSSION

KRS 278.020(1)(a) generally requires a utility to obtain a CPCN before beginning the construction of any plant, equipment, property, or facility. However, a CPCN is not required for “ordinary extensions of existing systems in the usual course of business.”³¹ An “ordinary extension . . . in the usual course of business” is not defined in KRS 278.020 or elsewhere in KRS Chapter 278. For that reason, the Commission promulgated 807 KAR 5:001, Section 15(3),³² which states:

Extensions in the ordinary course of business. A certificate of public convenience and necessity shall not be required for extensions that do not create wasteful duplication of plant, equipment, property, or facilities, or conflict with the existing certificates or service of other utilities operating in the same area , *and* that do not involve sufficient capital outlay to materially affect the existing financial condition of the utility involved, or will not result in increased charges to its customers.³³

The Commission has interpreted 807 KAR 5:001, Section 15(3), as stating that no CPCN is required for extensions “that do not result in the wasteful duplication of utility plant, do not compete with the facilities of existing public utilities, and do not involve a sufficient capital outlay to materially affect the existing financial condition of the utility

³⁰ *Id.*

³¹ KRS 278.020(1)(a)1

³² Case No. 2000-00481, *Application of Northern Kentucky Water District (A) For Authority to Issue Parity Revenue Bonds in the Approximate Amount of \$16,545,000; and (B) A Certificate of Convenience and Necessity for the Construction of Water Main Facilities* (Ky. PSC Aug. 30, 2001), Order at 4.

³³ 807 KAR 5:001, Section 15(3) (emphasis added).

involved or to require an increase in utility rates.”³⁴ Applying those criteria, the Commission has previously found that proposed extensions necessary to serve a large, sophisticated customer and wholly funded by that customer pursuant to an agreement with that customer do not require a CPCN, in part, because they will not affect the financial condition of the utility and will not result in an increase in charges to other customers.

For instance, in Case No. 2018-00164,³⁵ the Commission held that a CPCN was not required for upgrades proposed by the Natural Energy Utility Corporation (NEUC) to a natural gas pipeline necessary to serve a large industrial customer, stating:

Pursuant to the Agreement, the new industrial customer will pay 100 percent of the proposed construction project costs. The Uniform System of Accounts requires customer contributions to be recorded as a credit to the cost of construction of the gas plant, so the plant construction funded by those contributions will not be recovered from NEUC's other customers. Therefore, the proposed project will not materially affect the utility's existing financial condition and will not require an adjustment of its rates.

Similarly, in Case No. 2014-00292, the Commission found that East Kentucky Power Company's (EKPC) construction of a landfill gas to energy facility did not require a CPCN, in part, because it was being constructed pursuant to a special contract in which a wholesale customer agreed to cover all construction and operational costs such that the construction would not materially affect EKPC's financial condition and would not result in an increase in rates to other customers.³⁶

³⁴ Case No. 2000-00481, Order at 4.

³⁵ Case No. 2018-00164, *The Filing of a Special Contract by Natural Energy Utility Corporation*, (Ky. PSC Sept. 6, 2018), Order at 3.

³⁶ Case No. 2014-00292, *Application of East Kentucky Power Cooperative, Inc. for an Order Declaring the Glasgow Landfill Gas to Energy Project to Be an Ordinary Extension of Existing Systems In*

The circumstances of this matter are similar to those in the NEUC and EKPC matters discussed above. The proposed projects will be used to provide service to the Government pursuant to its special contract with Hardin District No. 1; the Government agreed to fund the construction costs for the projects as proposed; the Contract requires Hardin District No. 1 to maintain separate books to separately account for the costs of service to the Government; and the Government agreed to pay all operational expenses necessary to provide service. Thus, as in the cases discussed above, those facts support a finding that the proposed projects will not materially affect the existing financial condition of the utility involved or result in increased charges to other customers.

There could be a situation where the size of a project in relation to the size of a utility might materially affect the existing financial condition of the utility or potentially result in increased charges to customers, as those terms are used in 807 KAR 5:001, Section 15(3), despite an agreement by a customer to cover all costs. However, there is a limited risk of nonpayment when the counterparty to a contract is the Government. Moreover, this is a very unique situation because the Government has already paid the funds necessary to complete the projects as proposed in the 2016 Amendment, and pursuant to the Contract, those funds have been specifically allocated to the projects at issue. The funds will either be spent on the projects or will not be spent at all under the current terms of the Contract. Thus, as proposed, the projects at issue would not materially affect Hardin District No. 1's existing financial condition or result in an increase in rates.

the Usual Course of Business and a Joint Application of Farmers Rural Electric Cooperative Corporation and East Kentucky Power (Ky. PSC Apr. 2, 2015).

However, as noted above, the scope and estimated cost of the Muldraugh WTP Improvements project are in flux. Hardin District No. 1 indicated that it found that additional work would be necessary to complete that project, but it could not state the full nature of the necessary work. Likewise, Hardin District No. 1 estimated that the cost of the project would increase from \$4,845,000 to between \$8,000,000 and \$13,000,000. Most importantly, Hardin District No. 1 does not currently have an agreement with the Government for the increased scope or cost of the project, so the financing for the project, which was the primary basis for the reasoning in the previous paragraph, is currently unknown. Thus, the Commission is not able to find that the Muldraugh WTP Improvements project would not materially affect the existing financial condition of the Hardin District No. 1 or result in increased charges to other customers.

The Commission does find that the other proposed projects will not materially affect the existing financial condition of the Hardin District No. 1 or result in increased charges to its other customers. Most of the other projects are small in scope and the estimated costs of the two largest projects actually decreased by about a third (a total decrease of \$3,309,833 for both projects). For that reason, the total cost of those projects is well within the unused proceeds of the ISDC Surcharge that have been allocated pursuant to the Contract, as amended, for use to complete those projects such that the cost of the projects will not materially affect Hardin District No. 1's financial condition or result in an increase in rates. Thus, the Commission finds that Project Nos. 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18³⁷ identified in the table above will not materially

³⁷ The Commission observes that there is no Project No. 6, because it was deleted from the proposal during the negotiations between HCWD1 and Government, but the other projects were not renumbered.

affect the existing financial condition of the utility or result in increased charges to its customers as those terms are used in 807 KAR 5:001, Section 15(3).

The Commission notes that it reached a different conclusion in the case in which it approved the Contract between Hardin District No. 1 and the Government. In that case, the Commission held that certain ISDCs funded through the ISDC Surcharge did require a CPCN, stating, in part:

We do not agree with Hardin District's contention that because the improvements will be funded through the tariffed rate, the cost of the facilities should be considered immaterial.³⁸

However, the order in that case provided no further explanation as to why the cost of the projects at issue necessitated a CPCN.³⁹ Moreover, while the Commission continues to agree that the estimated cost of such facilities is not immaterial, estimated costs are only one factor to be considered in determining whether a particular extension will materially affect the existing financial condition of the utility or result in increased charges to its customers. As discussed above, the relevant facts in this matter support the Commission's finding that the proposed projects, except for the Muldrough WTP, will not have a material effect on Hardin District No. 1's financial condition or its rates. Thus, following the more recent precedent of the cases cited above, customer funding of facilities is a factor to be considered in determining whether a project is exempt for the requirements of a CPCN, and to the extent that the findings in the December 4, 2011 Order in Case No. 2011-00416 imply otherwise, those findings are modified by this Order.

³⁸ Case No. 2011-00416, Application of Hardin County Water District No. 1 for Approval of a Contract with United States Army to Provide Water Service to the Fort Knox Military Installation (Ky. PSC Dec. 4, 2012), Order 4, FN 10.

³⁹ *See id.* at 3–4.

However, the proposed projects will not qualify for the ordinary course of business exception if they result in wasteful duplication or conflict with the certificate or service of another utility. There is no real question that the proposed extensions do not conflict with certificate or service of another utility because the extensions are improvements to Fort Knox's water system for the purpose of providing water service to Fort Knox pursuant to the Contract. Additionally, the evidence indicates that the projects, other than the Muldraugh WTP Improvements project, will not result in wasteful duplication because the projects were initially proposed pursuant to a plan developed by a third party engineer at the request of the Government to correct water pressure and quality issues; the scope of the projects were agreed to by the Government following several months of negotiations; and Hardin District No. 1 indicated that the projects are necessary to correct the service issues raised by the Government, among other things. Thus, the Commission finds that Project Nos. 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18 as described in this matter will not result in wasteful duplication or conflict with the existing service or certificates of another utility.

Having reviewed the record and being otherwise sufficiently advised, the Commission finds that a CPCN is not required for Project Nos. 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18 identified in the table above. However, the Commission's findings are based on the record of this matter, so any material changes to those projects or the terms and conditions of the Contract regarding those projects not identified herein may affect the Commission's findings that a CPCN is not required for those projects. The Commission makes no finding regarding whether a CPCN is required for the Muldraugh

WTP Improvements project because neither the scope nor the cost of that project is sufficiently defined to make such a determination.

The Commission also notes that KRS 278.160(1) requires, among other things, that “each utility shall file with the commission . . . schedules showing all rates and conditions for service established by it and collected or enforced.” Section 13 of 807 KAR 5:011, requires each utility to “file a copy of each special contract that establishes rates, charges, or conditions of service not contained in its tariffs.” That regulation applies to contract amendments that establish new rates, charges, or conditions of service not contained in a utility’s tariff.

The Contract contains rates and conditions of service subject to the jurisdiction of the Commission. Hardin District No. 1 filed the Contract with the Commission and requested approval for the same, which was previously granted. However, Hardin District No. 1 filed a number of amendments to the Contract in response to Request for Information in this matter that had not been previously filed with the Commission. To comply with KRS 278.160 and 807 KAR 5:011, Section 13, Hardin District No. 1 must file any amendment to the Contract that changes the rate, charges, or conditions of service.

IT IS THEREFORE ORDERED that:

1. Hardin District No. 1’s request for a declaratory order is granted in part and denied in part.
2. Project Nos. 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18, as described in this matter, are properly classified as ordinary extensions of existing systems

in the usual course of business, and a CPCN, pursuant to KRS 278.020(1), is not required for their construction.

3. No decision can be made at this time as to whether the Muldraugh WTP Improvements project is an ordinary extension of existing systems in the usual course of business or whether its construction requires a CPCN pursuant to KRS 278.020(1), for the reasons discussed in the findings above.

4. Within 30 days of the date of this Order, Hardin District No. 1 shall file with the Commission any amendment to the Contract that changed any rates, charges, or condition of service.

5. Any documents filed in the future pursuant to ordering paragraph 4 shall reference this case number and shall be retained in the post-case correspondence file.

6. This case is closed and removed from the Commission's docket.

By the Commission

ENTERED
MAY 30 2019
KENTUCKY PUBLIC
SERVICE COMMISSION

ATTEST:


Executive Director

EXHIBIT 21E

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF HARDIN)	
COUNTY WATER DISTRICT NO. 1 FOR A)	
DECLARATORY ORDER REGARDING THE)	CASE NO.
APPLICABILITY OF KRS 278.020(1) TO)	2020-00344
PROPOSED IMPROVEMENTS TO)	
MULDRAUGH WATER TREATMENT PLANT)	

ORDER

On November 3, 2020, Hardin County Water District No. 1 (Hardin District No. 1) submitted an application pursuant to KRS 278.020 and 807 KAR 5:001, Sections 15 and 19, for a declaratory order finding that proposed capital improvements to the Muldraugh Water Treatment Plant (Muldraugh WTP) do not require a Certificate of Public Convenience and Necessity (CPCN). No party has requested to intervene in this matter. A representative from the Defense Logistical Agency Energy (DLAE) provided a letter, which Hardin District No. 1 filed in conjunction with its application, indicating that DLAE agrees with the proposed plan for the project at issue and, as proposed, the project will be funded with the proceeds remaining from the Initial System Deficiency Correction Surcharge (ISDC Surcharge) and other funds in the Fort Knox Water Utility Fund.¹ Hardin District No. 1’s application for a declaratory order is now before the Commission for a decision.²

¹ Silverstone, Carl, *Letter* (dated Nov. 4, 2020).

² See 807 KAR 5:001, Section 19(7) (indicating that the Commission may dispose of an application for a declaratory order based solely on the basis of the written application and any response thereto); 807 KAR 5:001, Section 19(1) (indicating that the Commission “may” issue a declaratory order upon application).

BACKGROUND

Hardin District No. 1 is a water district organized pursuant to KRS Chapter 74 that owns and operates facilities that produce and distribute water to the public in portions of Breckinridge, Hardin, and Meade counties.³ Hardin District No. 1 provides retail service to over 10,000 customers in Hardin County, Kentucky and provides wholesale water service to Meade County Water District and the cities of Vine Grove, Hardinsburg, and West Point. Hardin District No. 1 provides sanitary sewer service to approximately 8,814 retail customers in Hardin County, Kentucky.⁴ Hardin District No. 1 also provides water service to Fort Knox pursuant to a special contract (Contract) it entered with the DLAE on September 30, 2011, and provides sewer service to Fort Knox pursuant to a separate contract.⁵

Under terms of the September 30, 2011 contract with DLAE, Hardin District No. 1 agreed to provide “potable water utility services” to the Fort Knox Military Installation, and the Government transferred “all rights, title and interest” in its potable water utility system at Fort Knox to Hardin District No. 1 in consideration for the payment of \$8.903 million, payable over ten years at an annual interest rate of 3 percent per annum. In lieu of making monthly payments for the purchase price, the Contract required Hardin District No. 1 to credit the Government’s monthly bill in the amount of \$85,968 for ten years following the purchase. However, the Contract simultaneously created a monthly Purchase Price Recovery Surcharge in the amount of \$85,968 for ten years to compensate Hardin District

³ Application at 2.

⁴ *Id.*

⁵ *Id.* at 3–5.

No. 1 for the purchase cost of the water system, which would be offset by the credit discussed above.

The Contract provides for a monthly utility service charge to cover Hardin District No. 1's operation and maintenance expenses and the cost of renewals and replacements for the water system at Fort Knox.⁶ It requires Hardin District No. 1 to maintain separate accounting for amounts used to provide service to Fort Knox and to routinely compare the accumulation of the "costs invested in owning and operating the Fort Knox potable water utility, plus G&A costs" against revenues received from the Fort Knox monthly utility service charge.⁷ The Contract then provides:

If HCWD1 collects excess funds on its rate charges, the excess funds will remain within the separate account for future use on the Fort Knox potable water utility system only. When total revenue requirements are higher than current rates, HCWD1 will request a rate adjustment.⁸

The Contract indicates that rate adjustments shall be subject to the jurisdiction of the Commission in accordance with FAR 52.241-7: Changes in Rates or Terms and Conditions of Service for Regulated Services.⁹

The Contract identified Initial System Deficiency Corrections (ISDCs), which were defined as projects "necessary to reach the standards typically maintained by the [Hardin District No. 1] on its utility systems so that subsequent renewals and replacements will

⁶ Contract at B.2.2.1.

⁷ Contract at Preamble.

⁸ *Id.*

⁹ Contract at G.4; I.5.3.

permit the longterm safe and reliable operation of the utility system.”¹⁰ The Contract specifically enumerated the ISDCs to be completed and required Hardin District No. 1 to complete them within five years of executing the Contract.¹¹ The Contract provided for an ISDC Surcharge in the amount of \$473,831 to be charged each month for 60 months following the execution of the Contract,¹² although that charge was lowered to \$399,792 after 20 months.¹³ The Contract indicated that the purpose of the ISDC Surcharge was to fund the ISDCs and the amount of the surcharge was based on the estimated costs of the ISDCs.

After Hardin District No. 1 entered into the Contract, Department of Defense (DoD) officials expressed concerns regarding water pressure, water taste, and general water quality.¹⁴ In response to those concerns, Hardin District No. 1 retained Stantec Consulting Services, Inc. (Stantec), to perform hydraulic and water quality modeling and to develop a capital improvements plan designed to address the concerns of the DoD officials.¹⁵ Hardin District No. 1 provided the results of that study and a capital improvements plan to the Government in 2015, and the Government requested that

¹⁰ Contract at C11.2 (defining ISDCs); *see also* Contract at B.5 (identifying specific ISDCs to be completed and their estimated cost).

¹¹ Contract at B.5 (identifying specific ISDCs to be completed and their estimated cost); Contract at C11.2 (stating that the ISDCs need to be completed with 5 years of the contract start date).

¹² Contract at B.3 (providing the amount, period, and term of the ISDC Surcharge).

¹³ Contract Amendment/Modification No. 00033 (dated Feb. 1, 2017) (produced as part of Hardin District No. 1’s response to Commission Staff’s First Request for Information, Item 1 in Case No. 2019-00067, *Application of Hardin County Water District No. 1 for a Declaratory Order that Proposed Waterworks Improvements to Maintain Adequate and Reliable Water Service to the Fort Knox Military Installation do not Require a Certificate of Public Convenience and Necessity*).

¹⁴ Application at 6.

¹⁵ *Id.*

Hardin District No. 1 submit a proposal for modifications to the initial plan.¹⁶ On September 4, 2015, Hardin District No. 1 submitted a Technical Proposal Submittal, which reported the results of its studies and proposed capital improvement projects to be substituted for ISDCs that had not yet been commenced.¹⁷ Following additional negotiations with the Government, Hardin District No. 1 submitted a final version of the proposal on June 1, 2016, which was accepted by the Government and executed as an amendment to the Contract on August 10, 2016 (2016 Amendment).¹⁸ The 2016 Amendment eliminated a number of ISDC projects as proposed and substituted 17 capital improvement projects.¹⁹

On February 26, 2019, Hardin District No. 1 applied to the Commission for a declaratory order that each of its 17 proposed projects was an extension the ordinary course of business and did not require a Certificate pursuant to 807 KAR 5:001, Section 19.²⁰ Hardin District provided detailed plans and projected costs for 16 of the proposed improvement projects. Those projects were to be paid from the ISDC Surcharge fund and other available funds in Hardin District No. 1's Fort Knox Water Fund Reserve, and the total cost of those projects was well within the proceeds allocated to those funds.²¹ In

¹⁶ *Id.*

¹⁷ Application at 6–7.

¹⁸ Application at 7; see *also* Contract Amendment/Modification No 00029.

¹⁹ Contract Amendment/Modification No. 00029 (dated August 10, 2016).

²⁰ Case No. 2019-00067, *Application of Hardin County Water District No. 1 for a Declaratory Order that Proposed Waterworks Improvements to Maintain Adequate and Reliable Water Service to the Fort Knox Military Installation Do Not Require a Certificate of Public Convenience and Necessity* (filed Feb. 26, 2019), Application.

²¹ Case No. 2019-00067, *Hardin County Water District No. 1* (Ky. PSC May 3, 2019), Order at 6 and 11; see *also* Contract Amendment/Modification No. 00029 (dated Aug. 10, 2016).

Case No. 2019-00067, the Commission found that 16 of the proposed projects qualified for an exception under 807 KAR 5:001, Section 19, as those projects would not materially affect the existing financial condition of Hardin District No. 1 or result in increased charges to its other customers.²² However, the Commission was not able to find that the Muldraugh WTP project qualified for an exception, as the scope and estimate cost of the project was in flux at the time of that application. Hardin District No. 1 acknowledged a significant increase in the estimated cost of the project because additional work was necessary, but could not state the full nature of the necessary work. Likewise, Hardin District No. 1 had estimated the cost of the project would increase from \$4,845,000 to between \$8,000,000 and \$13,000,000.²³ Therefore, the financing for the project was unknown and the Commission was unable to find that the project would not materially affect the existing financial condition of Hardin No. 1 or result in increased charges to other customers.²⁴

Hardin District No. 1 has now filed this application proposing improvements to the Muldraugh WTP to include: (1) replacement of existing high service pumps to ensure compatibility and maximum effectiveness with new water storage tanks and the addition of a fourth high service pump; (2) chemical feed system improvements and redundancy; (3) rehabilitation of filter gallery piping; (4) air scour and surface wash; (5) main treatment plant building rehabilitation and new control room and water quality laboratory; (6) SCADA improvements; (7) installation of grid-based backwash supply; (8) concrete rehabilitation;

²² Case No. 2019-00067, *Hardin County Water District No. 1* (Ky. PSC May 3, 2019), Order at 11– 14.

²³ *Id.* at 7.

²⁴ *Id.* at 11.

(9) perimeter fencing and security enhancements; (10) regrading and paving of parking and delivery areas; (11) conversion of disinfection to chloramines; and (12) influent piping improvements to allow both treatment trains to operate simultaneously, thus increasing treatment plant capacity from 4.5 to 7.0 MGD.²⁵

Hardin District No. 1 opened bids for the Muldraugh WTP project in September of 2020 and initially received two responsive bids which both exceeded Hardin District No. 1's total project funding level of \$16,000,000.²⁶ Hardin District No. 1 negotiated with each bidder and requested reductions for removal of a PAC Slurry Structure from the proposed scope of work.²⁷ The Muldraugh WTP project was then ultimately bid at \$15,273,526 from Dugan & Myers LLC of Louisville, Kentucky.²⁸ Hardin District No. 1 states it will finance the cost of the Muldraugh WTP Improvement Project with funds from the Fort Knox Water Reserve Fund, which has a cash balance of \$17,189,743 and is adequate to cover the proposed construction costs.²⁹

Hardin District No. 1 further states that it is not required to obtain additional DLAE approval of this project's current scope or cost, as DLAE has concurred with the proposed improvements via the prior execution of Contract Modifications (P00029 and P0033).³⁰ However, Hardin District No. 1 has advised DLAE of its current plans and has provided

²⁵ Application at 9–10.

²⁶ Application at 10.

²⁷ *Id.* See also Application, Tabs 6 and 7.

²⁸ Application at 10 and Tab 6.

²⁹ Application at 10.

³⁰ Application, Tab 4 and Tab 5.

two correspondence from DLAE stating there is no objection to the proposed plan of action or funding for the Muldraugh WTP project.³¹

Hardin District No. 1 has requested that the Case No. 2019-00067 be incorporated by reference in this matter. Hardin District No. 1 has also requested an expedited decision by the Commission on this matter, as this project is estimated to take six to nine months to complete, and during that time the Muldraugh WTP will be offline and the Central Water Treatment plant will be relied on to meet Fort Knox's water needs. Should Hardin District No. 1 be unable to complete the project prior to July 1, 2021, summer training scheduled to resume at that time for an additional 20,000 military personnel allegedly will be adversely affected.³²

DISCUSSION

KRS 278.020(1)(a) generally requires a utility to obtain a CPCN before beginning the construction of any plant, equipment, property, or facility. However, a CPCN is not required for "ordinary extensions of existing systems in the usual course of business."³³ An "ordinary extension . . . in the usual course of business" is not defined in KRS 278.020 or elsewhere in KRS Chapter 278. For that reason, the Commission promulgated 807 KAR 5:001, Section 15(3),³⁴ which states:

Extensions in the ordinary course of business. A certificate of public convenience and necessity shall not be required for extensions that do not create wasteful duplication of plant,

³¹ Application, Tab 11. See also Silverstone, Carl, Letter Re: Muldraugh WTP project (dated Nov. 4, 2020).

³² Application at 20.

³³ KRS 278.020(1)(a)1.

³⁴ Case No. 2000-00481, *Application of Northern Kentucky Water District (A) For Authority to Issue Parity Revenue Bonds in the Approximate Amount of \$16,545,000; and (B) A Certificate of Convenience and Necessity for the Construction of Water Main Facilities* (Ky. PSC Aug. 30, 2001), Order at 4.

equipment, property, or facilities, or conflict with the existing certificates or service of other utilities operating in the same area . . . , *and* that do not involve sufficient capital outlay to materially affect the existing financial condition of the utility involved, or will not result in increased charges to its customers.³⁵ (Emphasis added.)

The Commission has interpreted 807 KAR 5:001, Section 15(3), as stating that no CPCN is required for extensions “that do not result in the wasteful duplication of utility plant, do not compete with the facilities of existing public utilities, and do not involve a sufficient capital outlay to materially affect the existing financial condition of the utility involved or to require an increase in utility rates.”³⁶ Applying those criteria, the Commission has previously found that proposed extensions necessary to serve a large, sophisticated customer and wholly funded by that customer pursuant to an agreement with that customer do not require a CPCN, in part, because they will not affect the financial condition of the utility and will not result in an increase in charges to other customers.

In Case No. 2018-00164,³⁷ the Commission held that a CPCN was not required for upgrades proposed by the Natural Energy Utility Corporation (NEUC) to a natural gas pipeline necessary to serve a large industrial customer, stating:

Pursuant to the Agreement, the new industrial customer will pay 100 percent of the proposed construction project costs. The Uniform System of Accounts requires customer contributions to be recorded as a credit to the cost of construction of the gas plant, so the plant construction funded by those contributions will not be recovered from NEUC's other customers. Therefore, the proposed project will not materially affect the utility's existing financial condition and will not require an adjustment of its rates.

³⁵ 807 KAR 5:001, Section 15(3).

³⁶ Case No. 2000-00481, *Northern Kentucky Water District* (Ky. PSC Aug. 30, 2001), Order at 4.

³⁷ Case No. 2018-00164, *The Filing of a Special Contract by Natural Energy Utility Corporation*, (Ky. PSC Sept. 6, 2018) Order at 3.

Similarly, in Case No. 2014-00292, the Commission found that East Kentucky Power Company's (EKPC) construction of a landfill gas to energy facility did not require a CPCN, in part, because it was being constructed pursuant to a special contract in which a wholesale customer agreed to cover all construction and operational costs such that the construction would not materially affect EKPC's financial condition and would not result in an increase in rates to other customers.³⁸

The Commission found in Case No. 2019-00067 that the proposed improvement projects approved therein were similar to those in the NEUC and EKPC matters discussed above.³⁹ Hardin District No.1 has now presented the Commission with the scope and cost of the Muldraugh WTP project, which is to be paid by remaining funds in the Fort Knox Water Reserve Fund. Therefore, the Muldraugh WTP project also adheres to the similarities found in the NEUC and EKPC matters. The proposed project will be used to provide service to the Government pursuant to its special contract with Hardin District No. 1; the Government agreed to fund the construction costs for the project as proposed; the Contract requires Hardin District No. 1 to maintain separate books to separately account for the costs of service to the Government; and the Government agreed to pay all operational expenses necessary to provide service. Thus, as in the cases discussed above, those facts support a finding that the proposed project will not materially affect the existing financial condition of the utility involved or result in increased charges to other customers.

³⁸ Case No. 2014-00292, *Application of East Kentucky Power Cooperative, Inc. for an Order Declaring the Glasgow Landfill Gas to Energy Project to Be an Ordinary Extension of Existing Systems in the Usual Course of Business and a Joint Application of Farmers Rural Electric Cooperative Corporation and East Kentucky Power* (Ky. PSC Apr. 2, 2015).

³⁹ Case No. 2019-00067, *Hardin County Water District No. 1* (Ky. PSC May 3, 2019), Order at 10.

The Commission would again note that there could be a situation where the size of a project in relation to the size of a utility might materially affect the existing financial condition of the utility or potentially result in increased charges to customers, as those terms are used in 807 KAR 5:001, Section 15(3), despite an agreement by a customer to cover all costs. However, there is a limited risk of nonpayment when the counterparty to a contract is the Government. Moreover, this remains a very unique situation because the Government has already paid the funds necessary to complete the project as proposed, and those funds have been specifically allocated to the projects previously completed and the one at issue. The funds will either be spent on the project or will not be spent at all under the current terms of the Contract. Thus, as proposed, the project at issue would not materially affect Hardin District No. 1's existing financial condition of the utility or result in increased charges to its customers as those terms are used in 807 KAR 5:001, Section 15(3).

As previously noted in Case No. 2019-00067, the Commission reached a different conclusion in the case in which it approved the Contract between Hardin District No. 1 and the Government. In that case, the Commission held that certain ISDCs funded through the ISDC Surcharge did require a CPCN, stating, in part:

We do not agree with Hardin District's contention that because the improvements will be funded through the tariffed rate, the cost of the facilities should be considered immaterial.⁴⁰

⁴⁰ Case No. 2011-00416, *Application of Hardin County Water District No. 1 for Approval of a Contract with United States Army to Provide Water Service to the Fort Knox Military Installation* (Ky. PSC Dec. 4, 2012), Order 4, footnote 10.

However, the order in that case provided no further explanation as to why the cost of the projects at issue necessitated a CPCN.⁴¹ Moreover, as stated by the Commission in Case No. 2019-00067,

The Commission continues to agree that the estimated cost of such facilities is not immaterial, estimated costs are only one factor to be considered in determining whether a particular extension will materially affect the existing financial condition of the utility or result in increased charges to its customers. As discussed above, the relevant facts in this matter support the Commission's finding that the proposed projects will not have a material effect on Hardin District No. 1's financial condition or its rates. Thus, following the more recent precedent of the cases cited above, customer funding of facilities is a factor to be considered in determining whether a project is exempt for the requirements of a CPCN, and to the extent that the findings in the December 4, 2011 Order in Case No. 2011-00416 imply otherwise, those findings are modified by this Order.⁴²

The Commission would again note that the proposed Muldraugh WTP project will not qualify for the ordinary course of business exception if it results in wasteful duplication or conflict with the certificate or service of another utility. There remains no real question that the proposed improvements do not conflict with certificate or service of another utility because the improvements to the Muldraugh WTP are for the purpose of providing water service to Fort Knox pursuant to the Contract. Additionally, the evidence indicates that this project will not result in wasteful duplication because the project was initially proposed pursuant to a plan developed by a third-party engineer at the request of the Government to correct water pressure and quality issues; the scope of the project is agreed to by the Government; and Hardin District No. 1 indicated that the project is necessary to correct the service issues raised by the Government, among other

⁴¹ See *Id.* at 3-4.

⁴² Case No. 2019-00067, *Hardin County Water District No. 1* (Ky. PSC May 3, 2019), Order at 12.

things. Thus, the Commission finds that the Muldraugh WTP project as described in this matter will not result in wasteful duplication or conflict with the existing service or certificates of another utility.

Having reviewed the record and being otherwise sufficiently advised, the Commission finds that a CPCN is not required for the proposed improvements to the Muldraugh Water Treatment Plant. The Commission does limit its finding that the proposed project is in the ordinary course of business under 807 KAR 5:001, Section 15(3), and the applicable Commission cases cited herein. The Commission finds that the Muldraugh WTP project does not require a CPCN because it is in the ordinary course of business, will not result in a rate increase, and is pursuant to a contract with the Government. Because the Muldraugh WTP project meets this threshold, the Commission does not need to address the merits of whether the project is exempt from CPCN requirements under KRS 278.020(1)(a)(3).

The Commission's findings are based on the record of this matter, so any material changes to this project or the terms and conditions of the Contract regarding this project not identified herein may affect the Commission's findings that a CPCN is not required for this project.

The Commission does note that KRS 278.160(1) requires, among other things, that "each utility shall file with the commission . . . schedules showing all rates and conditions for service established by it and collected or enforced." Pursuant to 807 KAR 5:011, Section 13, each utility is required to "file a copy of each special contract that establishes rates, charges, or conditions of service not contained in its tariffs."

That regulation applies to contract amendments that establish new rates, charges, or conditions of service not contained in a utility's tariff.

The Contract contains rates and conditions of service subject to the jurisdiction of the Commission. Hardin District No. 1 filed the Contract with the Commission and requested approval for the same, which was previously granted. However, Hardin District No. 1 filed a number of amendments to the Contract in Case No. 2019-00067 and the present matter and the Commission finds that to comply with KRS 278.160 and 807 KAR 5:011, Section 13, Hardin District No. 1 must re-file the Contract with all amendments, as well as any further amendment to the Contract that changes the rate, charges, or conditions of service.

IT IS THEREFORE ORDERED that:

1. Case No. 2019-0067 is hereby incorporated by reference into this matter.
2. Hardin District No. 1's request for a declaratory order is granted.
3. Hardin District No. 1's proposed improvements to the Muldraugh Water Treatment Plant, as described in this matter, are properly classified as ordinary extensions of existing systems in the usual course of business, and a CPCN, pursuant to KRS 278.020(1), is not required for their construction.
4. Within 30 days of the date of this Order, Hardin District No. 1 shall file with the Commission the Contract with all amendments and shall file in the future any further amendment to the Contract that changes any rates, charges, or condition of service.
5. Any documents filed in the future pursuant to ordering paragraph 4 shall reference this case number and shall be retained in the post-case correspondence file.
6. This case is closed and removed from the Commission's docket.

By the Commission

ENTERED
DEC 03 2020 rcs
KENTUCKY PUBLIC
SERVICE COMMISSION

ATTEST:



Deputy Executive Director

Case No. 2020-00344

EXHIBIT 21F



Andy Beshear
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Michael J. Schmitt
Chairman

Robert Cicero
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Talina R. Mathews
Commissioner

February 17, 2020

PSC STAFF OPINION 2020-007

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Bailey Law Office, PSC
181 East Court Street
Prestonsburg KY 41653

Re: Southern Water and Sewer District Request for Staff Advisory Opinion
Regarding Replacement of Mink Branch Water Tank

Dear Mr. Bailey:

The Commission acknowledges receipt of your February 3, 2020 letter on behalf Southern Water and Sewer District (Southern District) requesting an advisory opinion. This opinion represents Commission Staff's (Staff) interpretation of the law as applied to the facts presented. This opinion is advisory in nature and not binding on the Commission should the issues be formally presented for Commission resolution.

A copy of your letter that sets forth the entirety of the facts is attached to this letter. You request a legal advisory opinion whether Southern District is required to obtain a Certificate of Public Convenience and Necessity (CPCN) to replace the Mink Branch water storage tank (Mink Branch Water Tank). The summary of relevant facts and advisory opinion follow.

You state that Mink Branch Water Tank is an aging and deteriorating 150,000-gallon water storage tank. You further state that Southern District publicly and competitively bid for construction of a new 250,000-gallon water storage tank to replace the current Mink Branch Water Tank at a cost of \$648,391.00. You state the Appalachian Regional Commission will fund 100 percent of the cost of the project in the form of a grant that will be administered by the Big Sandy Administration District in Prestonsburg, Kentucky. You also state that there is no loan or debt service associated with this project, Southern District's financial condition will not be impacted, and no customer rate increase is expected or proposed as a result of this project. Finally, you request a Staff Opinion whether a CPCN is necessary so that Southern District may proceed with construction as soon as possible.

The Commission analyzes construction projects on an individual basis to determine whether a project is exempt from the requirement in KRS 278.020(1) to obtain a CPCN. As with all legal opinion requesting a determination of the exemption from the requirement of a CPCN, Staff's review does not consider the reasonableness or the need for the project. Therefore, because reasonableness and need are not considered in this opinion, or in other non-rate cases, the cost of the project can be denied recovery in a rate case if found to be unreasonable or unnecessary.

KRS 278.020(1) provides, in relevant part, as follows:

No person, partnership, public or private corporation, or combination thereof shall commence providing utility service to or for the public or begin the construction of any plant, equipment, property, or facility for furnishing to the public any of the services enumerated in KRS 278.010, except retail electric suppliers for service connections to electric consuming facilities located within its certified territory and ordinary extensions of existing systems in the usual course of business, until that person has obtained from the Public Service Commission a certificate that public convenience and necessity require the service or construction.

Regarding the exception to the CPCN requirement, Administrative Regulation 807 KAR 5:001 , Section 15(3) provides, in full, as follows:

Extensions in the ordinary course of business. A certificate of public convenience and necessity shall not be required for extensions that do not create wasteful duplication of plant, equipment, property, or facilities, or conflict with the existing certificates or service of other utilities operating in the same area and under the jurisdiction of the commission that are in the general or contiguous area in which the utility renders service, and that do not involve sufficient capital outlay to materially affect the existing financial condition of the utility involved, or will not result in increased charges to its customers.

In analyzing whether the proposed Mink Branch Water Tank project would material affect Southern District's financial condition, Staff notes that you stated that the cost of the project was funded entirely by a grant, and that no loan or debt service is associated with the project.

Based upon the statement that the cost of the project is funded entirely by grants, the Mink Branch Water Tank project will not have any effect on Southern District's rates. Thus, the project is considered to be an extension in the ordinary course of business. Additionally, the Mink Branch Water Tank would not result in wasteful duplication of

facilities or conflict with the service of other utilities because it is a replacement of an existing water tank that is deteriorating. Thus, Staff is of the opinion that the proposed Mink Branch Storage Tank project as described in your letter satisfies the ordinary course of business exemption from CPCN requirement.

This letter represents Commission Staff's interpretation of the law as applied to the facts presented. This opinion is advisory in nature and is not binding on the Commission should the issues herein be formally presented for Commission resolution. Questions concerning this opinion should be directed to Nancy J. Vinsel, Assistant General Counsel, at 502-782-2582.

Sincerely,



J.E.B. Pinney
Acting General Counsel

NJV/kg

Attachment

RECEIVED

FEB 03 2020

PUBLIC SERVICE
COMMISSION

Bailey Law Office, P.S.C.
Steven P. Bailey, J.D./M.B.A.
Legal Counsel for Southern Water
181 East Court Street
Prestonsburg, KY 41653
Phone: (606) 263-4913
Fax: (606) 263-4914
steven@baileylawofficepsc.com

January 31, 2020

Ms. Gwen Pinson
Executive Director
Public Service Commission
211 Sower Blvd.
P.O. Box 615
Frankfort, Kentucky 40602

Re: Southern Water and Sewer District
Replacement of Mink Branch Water Tank

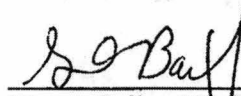
Dear Ms. Pinson:

My office represents Southern Water and Sewer District. The district is in the process of replacing an aging and deteriorating 150,000-gallon water storage tank with a new 250,000-gallon water storage tank.

The project has been publicly and competitively bid for construction with the total bid price of \$648,391.00. Funding for the project is being provided in the form of a One Hundred Percent (100%) grant from the Appalachian Regional Commission. The grant is being administered by The Big Sandy Administration District in Prestonsburg, Kentucky. There is no loan or debt service associated with this project.

The existing financial condition of the district is not anticipated to be impacted and no customer rate increase is expected or proposed as a result of this project. The district hereby requests a waiver of the requirement for Certificate of Convenience and Necessity, or other prior approval of the PSC for the project, so that the district may proceed with construction as quickly as possible. This request is made in accordance with KRS 278.020(1) and 807 KAR 5:001, Section 9(3).

If you have any question regarding this matter, or if additional information is required, please do not hesitate to contact my office at (606) 263-4913.



Steven Bailey J.D./M.B.A.

EXHIBIT 21G



Matthew G. Bevin
Governor

Charles G. Snavely
Secretary
Energy and Environment Cabinet

Commonwealth of Kentucky
Public Service Commission
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Fax: (502) 564-3460
psc.ky.gov

James W. Gardner
Chairman

Daniel E. Logsdon, Jr.
Vice Chairman

J. Roger Thomas
Commissioner

February 25, 2016

PSC STAFF OPINION 2016-005

Dawn R. Watts, Esq.
15 Howell Lane
P.O. Box 944
Jackson, KY 41339

Re: Breathitt County Water District
Frozen Creek Water Extension, Phase IV

Dear Ms. Watts,

The Commission received on January 6, 2016, your letter dated January 4, 2016, in which you request on behalf of Breathitt County Water District ("BCWD") an opinion regarding the need for a Certificate of Public Convenience and Necessity ("CPCN") for a water line extension in Breathitt County, Kentucky.

Based upon your letter, Commission Staff understands the facts are as follows:

BCWD, a water district organized pursuant to KRS Chapter 74, provides water service to 1,605 customers in Breathitt County, Kentucky.¹

On October 30, 2012, BCWD filed an Application for "Frozen Creek Phase I Project." Said Project was to consist of the construction and installation of approximately 57,800 linear feet of 8-inch PVC waterline; 4,060 linear feet of 4-inch PVC waterline; 760 linear feet of 2-inch PVC waterline; various sized HDPE directionally drilled waterline; a duplex pump station; a 132,000 gallon water storage tank, and all appurtenances. The project was to be totally funded through a Grant Agreement titled "Federally Funded Memorandum of Agreement Between the Commonwealth of Kentucky Environmental and Public Protection Cabinet and Breathitt

¹ Annual Report of Breathitt County Water District to the Public Service Commission for the Year Ended December 31, 2014 ("2014 Annual Report") at 53 of 71.

County Water District" administered by the Kentucky Division of Abandoned Mine Lands (AML). Said Application was granted pursuant to Order entered January 17, 2013, in Case No. 2012-00481.²

BCWD subsequently proposed to construct Phase II of the Frozen Creek Waterline Extension Project to an area where residents were relying on wells, springs, and hauled water for their domestic needs. BCWD informed Commission Staff that the project was expected to cost approximately \$2,040,062, and was to be totally paid for with Federal Abandoned Mine Lands funds. BCWD further informed Commission Staff that the project would not create wasteful duplication of plant, equipment, property or facilities; would not conflict with existing operations of utilities in the same area; would not materially affect the existing financial condition of the utility; and would not result in increased charges to its customers.³ Based on this information, Commission Staff advised BCWD that its implementation of the proposed project would not require a Certificate of Public Convenience and Necessity.⁴

BCWD subsequently proposed to construct Phase III of the Frozen Creek Waterline Extension Project to an area where residents were relying on wells, springs, and hauled water for their domestic needs. BCWD informed Commission Staff that the project was expected to cost approximately \$799,666, and was to be totally paid for with Federal Abandoned Mine Lands funds. BCWD further informed Commission Staff that the project would not create wasteful duplication of plant, equipment, property or facilities; would not conflict with existing operations of utilities in the same area; would not materially affect the existing financial condition of the utility; and would not result in increased charges to its customers.⁵ Based on this information,

² *Application of the Breathitt County Water District for a Certificate of Public Convenience and Necessity to Construct Pursuant to KRS 278.020, Case No. 2012-00481 (Ky. PSC Jan. 17, 2013).*

³ Letter of March 21, 2014 from Hon. Brendon D. Miller, Breathitt County Attorney, on behalf of the BCWD.

⁴ PSC Staff Opinion 14-007 (May 16, 2014).

⁵ Letter of August 11, 2014 from Hon. Brendon D. Miller, Breathitt County Attorney, on behalf of the BCWD.

Commission Staff advised BCWD that its implementation of the proposed project would not require a Certificate of Public Convenience and Necessity.⁶

BCWD now proposes to construct Phase IV of the Frozen Creek Waterline Extension Project to an area where residents currently rely on wells, springs or hauled water for their domestic needs. According to your letter, the Phase IV Project will cost approximately \$1,017,299, to be totally paid for with Federal Abandoned Mine Lands funds. You further state that the project will not create wasteful duplication of plant, equipment, property or facilities; will not conflict with existing operations of utilities in the same area; will not materially affect the existing financial condition of the utility; and will not result in increased charges to its customers.⁷

Your letter presents the following question: Is BCWD required to obtain a Certificate of Public Convenience and Necessity for the proposed Phase IV project?

KRS 278.020(1) provides:

No person, partnership, public or private corporation, or combination thereof shall commence providing utility service to or for the public or begin the construction of any plant, equipment, property, or facility for furnishing to the public any of the services enumerated in KRS 278.010, except retail electric suppliers for service connections to electric-consuming facilities located within its certified territory and ordinary extensions of existing systems in the usual course of business, until that person has obtained from the Public Service Commission a certificate that public convenience and necessity require the service or construction.

Administrative Regulation 807 KAR 5:001, Section 15(3), further provides:

Extensions in the ordinary course of business. A certificate of public convenience and necessity shall not be required for extensions that do not create wasteful duplication of plant, equipment, property, or facilities, or conflict with the existing certificates or service of other utilities operating in the same area and under the jurisdiction of the commission that are in

⁶ PSC Staff Opinion 2014-011 (Sept. 3, 2014).

⁷ Letter of January 4, 2016, from Hon. Dawn R. Watts on behalf of BCWD.

the general or contiguous area in which the utility renders service, and that do not involve sufficient capital outlay to materially affect the existing financial condition of the utility involved, or will not result in increased charges to its customers.

Under this definition, the proposed Phase IV Project as described in your letter would be an extension in the ordinary course of business that would not require a Certificate of Public Convenience and Necessity. The water line extension will be to an area not currently served by a water distribution system and thus will not conflict with the service of a jurisdictional utility or result in a wasteful duplication of plant. Further, because the project is to be paid for with Federal Abandoned Mine Lands funds, the project will not involve a capital outlay that would materially affect BCWD's financial condition or require an increase in its rates. According to its most recent Annual Report, BCWD currently has net utility plant of \$34,669,698.⁸ The proposed project represents an increase in BCWD's net utility plant of 2.9%. The Commission traditionally has considered such an increase in total utility plant to be ordinary.⁹

Recent legislative action, furthermore, specifically exempts the proposed construction from the requirement for a Certificate of Public Convenience and Necessity. In the 2014 Regular Session, the Kentucky General Assembly enacted legislation that provides:

Water Districts and Water Associations: A water district created pursuant to KRS Chapter 74 and a water association formed under KRS Chapter 273 that undertakes a waterline extension or improvement project shall not be required to obtain a certificate of public convenience and necessity, notwithstanding KRS 278.020(1), if the water district or water association is a Class A or B utility as defined in the Uniform System of Accounts established by the Public Service Commission, pursuant to KRS 278.220, as the system of accounts prescribed for utilities in Kentucky, and either: (a) The water line extension or improvement project will not cost in excess of \$500,000; or (b) The water district or water association will not, as a result of the water line extension or improvement project, incur obligations requiring Public Service Commission approval pursuant to KRS 278.300. In either case, the water district or water association shall not,

⁸ 2014 Annual Report, at 20 of 71.

⁹ See, e.g., Case No. 2014-00171, *Application of Northern Kentucky Water District for Approval of Dixie Highway Water Main Improvements, Issuance of a Certificate of Convenience and Necessity and Approval of Financing* (Ky. PSC Aug. 4, 2014).

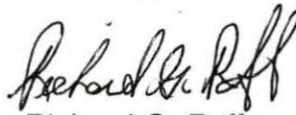
as a result of the water line extension or improvement project, increase rates to its customers.

2014 Ky. Acts Ch. 117. This Act became effective on April 12, 2014.

As BCWD had average annual water operating revenues of \$739,389 for the past three calendar years,¹⁰ it is a Class B water utility¹¹ and falls within the class of water utilities subject to the exemption. Although the construction costs of the proposed project are in excess of \$500,000, the projected total of \$1,017,299.00 will be paid in full by the Federal Abandoned Mine Lands funds, and hence the project will not require BCWD to incur obligations requiring Commission approval pursuant to KRS 278.300. Therefore, the Act exempts the construction from the requirement to obtain a Certificate of Public Convenience and Necessity.

This letter represents Commission Staff's interpretation of the law as applied to the facts presented. This opinion is advisory in nature and not binding on the Commission should the issues herein be formally presented for Commission resolution. Questions concerning this opinion should be directed to John B. Park, Commission Staff Attorney, at (502) 782-2589, or John.Park@ky.gov.

Sincerely,



Richard G. Raff
General Counsel

JP/ph

¹⁰ 2014 Annual Report, at 53 of 71; *Annual Report of Breathitt County Water District to the Public Service Commission for the Year Ended December 31, 2013* at 53 of 71; and *Annual Report of Breathitt County Water District to the Public Service Commission for the Year Ended December 31, 2012* at 49 of 67.

¹¹ The Kentucky Public Service Commission's Uniform System of Accounts defines a Class B water utility as a utility "having annual water operating revenues of \$250,000 or more but less than \$750,000." *Uniform System of Accounts for Class A and B Water Districts and Associations* (2002), at 15 (found at <http://psc.ky.gov/agencies/psc/forms/usoa/0700ab02.pdf>).

EXHIBIT 21H



Steven L. Beshear
Governor

Leonard K. Peters
Secretary
Energy and Environment Cabinet

Commonwealth of Kentucky
Public Service Commission
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David L. Armstrong
Chairman

James W. Gardner
Vice Chairman

Linda Breathitt
Commissioner

September 11, 2012

Hon. John N. Hughes
124 West Todd Street
Frankfort, Kentucky 40601

PSC STAFF OPINON 2012-019

RE: Natural Energy Utility Corporation
Staff Opinion Request
Need for Certificate of Public Convenience and Necessity

Dear Mr. Hughes:

Commission Staff is in receipt of your letter sent on behalf of Natural Energy Utility Corporation ("NEUC") dated August 17, 2012. In this letter you request an assessment of whether NEUC's extension of a natural gas main to the site of the new Boyd County High School can be considered in the ordinary course of business or if a certificate of public convenience and necessity ("CPCN") from the Commission is required prior to beginning work on the project.

This letter represents Commission Staff's interpretation of the law as applied to the facts presented. This opinion is advisory in nature and not binding on the Commission should the issues herein be formally presented for Commission resolution.

In determining whether a project is in the ordinary course of business, KRS 278.020(1) provides, in relevant part, as follows:

No person, partnership, public or private corporation, or combination thereof shall commence providing utility service to or for the public or begin the construction of any plant, equipment, property, or facility for furnishing to the public any of the services enumerated in KRS 278.010, except ... ordinary extensions of existing systems in the usual course of business, until that person has obtained from the Public Service Commission a certificate that public convenience and necessity require the service or construction.

807 KAR 5:001, Section 9(3) provides as follows:

Extensions in the ordinary course of business. No certificate of public convenience and necessity will be required for extensions that do not create wasteful duplication of plant, equipment, property or facilities, or conflict with the existing certificates or service of other utilities operating in the same area and under the jurisdiction of the commission that are in the general area in which the utility renders service or contiguous thereto, and that do not involve sufficient capital outlay to materially affect the existing financial condition of the utility involved, or will not result in increased charges to its customers.

Whether a given project is considered "in the ordinary course of business" is fact specific and is examined in the context of several factors, including (1) whether there will be wasteful duplication of plant, including interference with another utility's certificates or services; (2) whether the capital required is so minimal that it will not "materially" affect the financial condition of the utility in question; and (3) whether the rates will increase as a result of the construction.

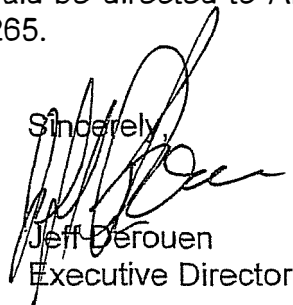
The details you outlined in the August 17, 2012, letter are as follows:

1. The purpose of the extension is to provide a stand-by fuel supply for a gas fired generator in the event of an electrical outage at the school.
2. A special contract will be filed with the Commission outlining the terms and conditions of providing the service.
3. The total amount of the project is to be funded by the Department of Education and Boyd County High School.
4. The estimated total cost is \$105,000.00.
5. NEUC's total plant in service is approximately \$6.5 million.
6. The project will have no impact on debt, operating costs, ongoing operations of the company or customer rates.
7. The planned project consists of 16,000 feet of two inch plastic pipe.
8. There are no other gas lines on the property.
9. Columbia Gas has gas facilities in the area of the new school, but has declined to extend its facilities.

Based on the information contained in your letter, Commission Staff's opinion is that this project would be in the ordinary course of business and would not require a CPCN from the Commission. It appears that this project would not be a wasteful duplication of facilities, would not materially affect the financial condition of NEUC, and would not have an impact on customer rates.

Questions concerning this opinion should be directed to Allyson Honaker, Staff Attorney, at (502) 564-3940, extension 265.

Sincerely,



Jeff Derouen
Executive Director

EXHIBIT 21I



Ernie Fletcher
Governor

Teresa J. Hill, Secretary
Environmental and Public
Protection Cabinet

Timothy J. LeDonne
Commissioner
Department of Public Protection

Commonwealth of Kentucky
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Fax: (502) 564 3460
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Mark David Goss
Chairman

John W. Clay
Vice Chairman

Caroline Pitt Clark
Commissioner

October 15, 2007

Mr. Chris A. Stewart
HMB Professional Engineers, Inc.
3 HMB Circle
U.S. Highway 60
Frankfort, Kentucky 40601

Re: Jessamine County Water District No. 1
Baker Lane Water Line Upgrade
HMB Project No. 4096.00

Dear Mr. Stewart:

Commission Staff acknowledges receipt of your letter of October 5, 2007 in which you request an opinion regarding the need for a certificate of public convenience and necessity for a proposed water main extension project in Jessamine County, Kentucky.

In your letter, you present the following facts: Jessamine County Water District No. 1, a water district organized pursuant to KRS Chapter 74, proposes to construct approximately 6,000 linear feet of 6 inch polyvinyl chloride (PVC) water main along Baker Lane in Jessamine County, Kentucky. This project is intended to improve water pressures and water flows in the area and to permit the provision of fire protection service. Jessamine County Water District No. 1 has requested and received bids for the construction of the proposed project. The lowest bid received is \$116,470. Jessamine County Water District No. 1 will finance the proposed project with a grant of \$210,000 from the Kentucky Infrastructure Authority ("KIA"). The total project cost is not expected to exceed this amount. The water district will not issue any evidence of indebtedness nor increase its rates for water service. In calendar year 2006, Jessamine County Water District No. 1 had total water operating revenues of \$873,336 and served 1,695 customers.¹

Your letter presents the following question: Must Jessamine County Water District No. 1 obtain a certificate of public convenience and necessity for the proposed project?

¹ Annual Report of Jessamine County Water District No. 1 to the Public Service Commission for the Calendar Year Ended December 31, 2006 at 27.

KRS 278.020(1) provides:

No person, partnership, public or private corporation, or combination thereof shall commence providing utility service to or for the public or begin the construction of any plant, equipment, property, or facility for furnishing to the public any of the services enumerated in KRS 278.010, except retail electric suppliers for service connections to electric consuming facilities located within its certified territory and ordinary extensions of existing systems in the usual course of business, until that person has obtained from the Public Service Commission a certificate that public convenience and necessity require the service or construction.

Administrative Regulation 807 KAR 5:001, Section 9(3) further provides:

Extensions in the ordinary course of business. No certificate of public convenience and necessity will be required for extensions that do not create wasteful duplication of plant, equipment, property or facilities, or conflict with the existing certificates or service of other utilities operating in the same area and under the jurisdiction of the commission that are in the general area in which the utility renders service or contiguous thereto, and that do not involve sufficient capital outlay to materially affect the existing financial condition of the utility involved, or will not result in increased charges to its customers.

Under the method of analysis that Commission Staff has historically employed, the proposed construction appears to be in the ordinary course of business and would not require a certificate of public convenience and necessity. According to its Annual Report for Calendar Year 2006, Jessamine County Water District No. 1 had net utility plant of \$3,260,551.² Assuming that the cost of the proposed construction is equal to the amount of the KIA grant, the proposed construction represents an increase of 6.4 percent in Jessamine County Water District No. 1's utility plant. Such an increase in net utility plant is considered to be within the ordinary course of business. See, e.g., City of Covington v. Board of Commissioners of Kenton County Water District No. 1, 371 S.W.2d 20 (Ky. 1963). Moreover, as the funds for the proposed construction will come from outside sources and will not require the issuance of additional debt or any increased charges to customers, the proposed construction does not appear to materially affect Jessamine County Water District No. 1's existing financial condition.³

² Id. at 7.

³ Assuming a useful service life of 20 years for the proposed water distribution mains, the water utility's annual depreciation expense will increase by \$10,500 as a result of the proposed extension. Based upon the utility's operating expenses in calendar year 2006, this expense represents an increase of 1.2 percent in the utility's total operating expenses. Id. at 11.

The Kentucky General Assembly, however, has recently enacted legislation that provides:

Water Districts and Water Associations: A water district created pursuant to KRS Chapter 74 and a water association created pursuant to KRS Chapter 273 that undertakes a waterline extension or improvement project shall not be required to obtain a certificate of public convenience and necessity pursuant to KRS 278.020(1) if the water district or water association is a Class A or B utility as defined in the Uniform System of Accounts established by the Public Service Commission, pursuant to KRS 278.220, as the system of accounts prescribed for utilities in Kentucky, and either: (a) The water line extension or improvement project will not cost in excess of \$500,000; or (b) The water district or water association will not, as a result of the water line extension or improvement project, incur obligations requiring Public Service Commission approval pursuant to KRS 278.300. In either case, the water district or water association shall not, as a result of the water line extension or improvement project, increase rates to its customers.

2006 Ky. Acts Chapter 252.

Based upon the facts presented in your letter and its interpretation of this Act, Commission Staff is of the opinion that the Act exempts the proposed construction from any requirement to obtain a certificate of public convenience and necessity. As Jessamine County Water District No. 1 had annual revenues in calendar year 2006 of \$897,365, it is a Class A water utility.⁴ The cost of the proposed water main replacement is approximately \$210,000. The proposed extension will not require the issuance of any evidence of indebtedness that requires Commission authorization or result in any increase in the water district's rates.

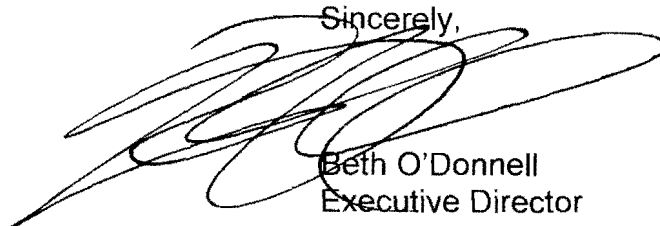
While Commission Staff is of the opinion that no certificate of public convenience and necessity is required, it requests that Jessamine County Water District No. 1 advise Commission Staff when the proposed construction is completed. It further requests that Jessamine County Water District No. 1 provide Commission Staff, within 60 days of the substantial completion of the proposed construction project, with a copy of the "as-built" drawings and a certified statement that the construction has been satisfactorily completed in accordance with the contract plans and specifications.

⁴ The Kentucky Public Service Commission's Uniform System of Accounts defines a Class A water utility as a utility "having annual water operating revenues of \$750,000 or more." Uniform System of Accounts for Class A/B Water Districts and Associations at 14 (2002) (found at <http://psc.ky.gov/agencies/psc/forms/usoa/0700ab02.pdf>).

Mr. Chris A. Stewart
October 15, 2007
Page 4

This letter represents Commission Staff's interpretation of the law as applied to the facts presented. This opinion is advisory in nature and not binding on the Commission should the issues herein be formally presented for Commission resolution. Questions concerning this opinion should be directed to Gerald Wuetcher, Assistant General Counsel, at (502) 564 3940, Extension 259.

Sincerely,

A handwritten signature in black ink, appearing to be "Beth O'Donnell", written over the typed name.

Beth O'Donnell
Executive Director