



**City of Kansas City, Missouri**  
**Public Works Department**  
**Terry Leads, Director**

- Executed Contract File
- Contractor
- Finance
- City Clerk
- Surety
- Granting Agency
- Project Manager
- CM/Inspector
- Design Professional
- \_\_\_\_\_

# Project Manual

**PROJECT No. 81000976/1643**

## **60-INCH FORCE MAIN REPAIRS AT THE BLUE RIVER WWTP**

### **BIDDER/ADDRESS**

<b>Company</b>	_____
<b>Contact</b>	_____
<b>Address</b>	_____
	_____
<b>Phone</b>	_____
<b>Fax</b>	_____
<b>Email</b>	_____

Project Manager: Kevin White  
Telephone: (816) 513-0213  
Email: [Kevin.White@kcmo.org](mailto:Kevin.White@kcmo.org)

CITY OF FOUNTAINS  
HEART OF THE NATION



KANSAS CITY  
MISSOURI

**ADDENDUM NUMBER 01**

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

ISSUE DATE: **September 13, 2021**

Information to Bidders The following is provided to Bidders for information only:

This addendum revises referenced proposal and/or specifications documents as follows:

1. Delete and replace the following section(s):

- a. Invitation to Bid (00130 DB) and Design-Build Instruction to Bidders (00210 DB), Section 4:

**The Water Services Department will hold a Mandatory Pre-Bid Conference on September 29, 2021, 11:00 AM., in-person in the Annex at Blue River WWTP, 7300 Hawthorn Rd, Kansas City, MO 64120; and virtually via Microsoft Teams. The Microsoft Teams meeting may be accessed by contacting the Project Manager within 48 hours of the meeting and requesting the meeting invitation be forwarded to the attendees' email address. Attendance at the pre-proposal conference is MANDATORY for all proposers on this Project. The City will not contract with a proposer who has not attended the entire pre-proposal conference for this project.**

- b. Invitation to Bid (00130 DB) and Design-Build Instruction to Bidders (00210 DB), Section 4:

**Site Walk. For those parties attending the Pre-Bid Conference in person, a Site Walk will be conducted after the Pre-Bid Conference. Bidders must adhere to all CITY COVID requirements throughout Site Walk.**

**NOTE: Bidders must acknowledge receipt of this Addendum by listing the number and date, where provided, on the Bid Form - Document 00410.**



CITY OF MOUNTAINS  
HEART OF THE NATION



KANSAS CITY  
MISSOURI

**ADDENDUM NUMBER 02**

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

ISSUE DATE: October 14, 2021

Bidders are hereby notified that the Bidding and Contract Documents for the above project, for which Bids are to be received on October 19, 2021, are amended as follows:

The Bid date for this Project stated in Document 00130 DB - Invitation to Bid shall be changed to: 2:00 PM, on November 5, 2021.

Information to Bidders The following is provided to Bidders for information only:

This Addendum addresses the following questions:

Q1.	Would CITY consider an extension to the current proposal due date of October 19, 2021 at 2:00 PM?
A1.	<b>CITY has extended the proposal due date. Sealed proposals are due by November 5, 2021 at 2:00 PM. Based on the extended proposal due date, the Public Bid Opening Date has been extended to December 7, 2021.</b>

This addendum revises referenced proposal and/or specifications documents as follows:

1. Delete or revise and replace the following section(s):
  - a. Delete Document *Design-Build Invitation to Bid (00130 DB) for Project No. 81000976/Contract No. 1643 – 60-Inch Force Main Repairs at the Blue River Wastewater Treatment Plant, Page 1, Paragraph 1 “...on October 19, 2021...”* and replace with:
 

**“...on November 5, 2021...”**
  - b. Delete Document *Design-Build Invitation to Bid (00130 DB) for Project No. 81000976/Contract No. 1643 – 60-Inch Force Main Repairs at the Blue River Wastewater Treatment Plant, Page 1, Subparagraph 2 “Technical Approach Submittal and Price Submittal,* and replace with:
 

**“Separate sealed proposals addressed to the Project Manager at KC Water services, Terrace Level, KC Water Services, 4800 E. 63<sup>rd</sup>. Street, Kansas City, MO 64130, are due on or before 2:00 PM on November 5, 2021.”**

- c. Revise Document *Design-Build Invitation to Bid (00130 DB) for Project No. 81000976/Contract No. 1643 – 60-Inch Force Main Repairs at the Blue River Wastewater Treatment Plant, Page 1, Subparagraph 3 “Virtual Public Bid Opening of Price Submittal*, as follows:

**“...is on December 7, 2021 at 2:00 PM via a virtual meeting. Link to Virtual Bid Opening will be issued via an addendum.**

- d. Revise Document *Design-Build Instructions to Bidders (00210 DB) for Project No. 81000976/Contract No. 1643 – 60-Inch Force Main Repairs at the Blue River Wastewater Treatment Plant, Page 1, Section 2. Bid Due Date*, as follows:

**“Each Bidder's Technical Approach Submittal and Price Submittal must be submitted in separate sealed envelopes/packages to the Project Manager at KC Water services, Terrace Level, KC Water Services, 4800 E. 63<sup>rd</sup>. Street, Kansas City, MO 64130, on or before 2:00 p.m. on November 5, 2021 (the "Bid Due Date")...”**

- e. Revise Document *Design-Build Instructions to Bidders (00210 DB) for Project No. 81000976/Contract No. 1643 – 60-Inch Force Main Repairs at the Blue River Wastewater Treatment Plant, Page 1, Section 3. Public Bid Opening Date*, as follows:

**On December 7, 2021 at 2:00 p.m., (the "Public Bid Opening Date"), in a virtual meeting, the City will publicly announce the scores earned by each Technical Approach submittal, and then will publicly open and read aloud the corresponding Price Submittal portion of that Bid.**

**NOTE: Bidders must acknowledge receipt of this Addendum by listing the number and date, where provided, on the Bid Form - Document 00410.**

**ADDENDUM NUMBER 03**Project Number 81000976/1643Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment PlantISSUE DATE: **October 20, 2021**Information to Bidders The following is provided to Bidders for information only:

This Addendum addresses the following questions:

Q1.	Can the schedule be submitted in 11x17 format?
A1.	<b>Yes.</b>
Q2.	SC-11.01 indicates a completion date of October 31 <sup>st</sup> , but no year. Could you provide substantial and final completion dates?
A2.	<b>Substantial completion should be achieved by October 31, 2022 and final completion should be achieved by December 31, 2022.</b>
Q3.	What pressure are the 60" force mains under?
A3.	<b>All flow from NEID and Blue River passes through the two lines. The flow will be anywhere between 30 and 120 million gallons per day (MGD) instantaneously during the duration of this work (split between the two lines). There are no pressure gauges installed on the 60" force mains.</b>
Q4.	Since the studs and nuts will be coated, is carbon steel acceptable, vs. SS or galvanized?
A4.	<b>Carbon steel is acceptable. Please note that information provided in Specification Section 05550 provides more information regarding requirements for the studs and nuts.</b>
Q5.	There are more forms in the online Bid Packet than are mentioned as required in the RFP. Can you provide a checklist of required forms?
A5.	<b>The forms that are noted in Form 00210 Design-Build Instruction to Bidders and Form 00410 Design-Build Bid Form – Price Submittal are what is required to be submitted in the time frames noted in those forms to support the Bid. These include:</b> <ol style="list-style-type: none"> <li><b>1. Technical Approach, as outlined in Form 00210</b></li> <li><b>2. Form 00410 – Design-Build Bid Form</b></li> <li><b>3. Form 01290.02 – Schedule of Values</b></li> <li><b>4. Form 00413 – Allowances</b></li> <li><b>5. Form 00420 – Alternates</b></li> <li><b>6. Form 00450 – HRD 08 Contractor Utilization Plan/Request for Waiver</b></li> <li><b>7. Form 00450.01 – Letter of Intent to Subcontract</b></li> </ol>

	<b>Refer to Form 00515 – Contract Required Submissions for instructions to assist in providing all necessary documents to enter into a contract with the City.</b>

**NOTE: Bidders must acknowledge receipt of this Addendum by listing the number and date, where provided, on the Bid Form - Document 00410.**

**ADDENDUM NUMBER 04**Project Number 81000976/1643Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment PlantISSUE DATE: **November 3, 2021**

Bidders are hereby notified that the Bidding and Contract Documents for the above project, for which Bids are to be received on November 5, 2021, are amended as follows:

The Bid date for this Project stated in Document 00130 DB - Invitation to Bid shall be changed to: 2:00 PM, on November 12, 2021.

Information to Bidders The following is provided to Bidders for information only:

This Addendum addresses the following questions:

Q1.	Would CITY consider an extension of 1 week to the current proposal due date of November 5, 2021 at 2:00 PM?
A1.	<b>CITY has extended the proposal due date. Sealed proposals are due by November 12, 2021 at 2:00 PM. Based on the extended proposal due date, the Public Bid Opening Date has been extended to December 14, 2021.</b>
Q2.	Section 01100, 1.01, F., Paragraph 7. directs the design builder to replace all studs and nuts. Paragraph 4. defines the abatement to approximately 2,000 linear feet of cast iron pipe, 12,000 nuts, and 6,000 studs. There appears to be no further definition of the limits to the mechanical work on the project. Section 15 provides specification for pipe couplings, ductile iron pipe, pipe system testing and many other misc. piping items. If the only mechanical work is replacement of the flange bolts, why are these specifications included?
A2.	<b>They are included to provide guidance as to CITY standards that could apply should work outside of the proposed scope of this project be required. Although it is anticipated that only the studs and nuts will be replaced, the integrity of the pipe and pipe components are unknown, and may be impacted by the proposed Scope of Work.</b>
Q3.	Please confirm that only the flange bolts are to be removed and replaced. If this is correct, coupling bolts and other misc. mechanical fasteners will remain intact.
A3.	<b>The removal and replacement of the coupling bolts is included in this Scope of Work. No couplers, and/or other miscellaneous metal fasteners are to be removed as part of this Scope of Work, unless removal of the associated bolts/studs damages the couplers/fasteners to a point requiring replacement.</b>

Q4.	Is a resource loaded preliminary schedule necessary with the technical proposal per 00210.15.c.6?
A4.	<b>A preliminary resource-loaded CPM construction schedule with anticipated milestones for the Project is required to be submitted with the Technical Proposal per Section 00210.15.c.6.</b>

This addendum revises referenced proposal and/or specifications documents as follows:

1. Delete or revise and replace the following section(s):

- a. Delete Document *Design-Build Invitation to Bid (00130 DB) for Project No. 81000976/Contract No. 1643 – 60-Inch Force Main Repairs at the Blue River Wastewater Treatment Plant, Page 1, Paragraph 1 “...on October 19, 2021...”* and replace with:

**“...on November 12, 2021...”**

- b. Delete Document *Design-Build Invitation to Bid (00130 DB) for Project No. 81000976/Contract No. 1643 – 60-Inch Force Main Repairs at the Blue River Wastewater Treatment Plant, Page 1, Subparagraph 2 “Technical Approach Submittal and Price Submittal,* and replace with:

**“Separate sealed proposals addressed to the Project Manager at KC Water services, Terrace Level, KC Water Services, 4800 E. 63<sup>rd</sup>. Street, Kansas City, MO 64130, are due on or before 2:00 PM on November 12, 2021.”**

- c. Revise Document *Design-Build Invitation to Bid (00130 DB) for Project No. 81000976/Contract No. 1643 – 60-Inch Force Main Repairs at the Blue River Wastewater Treatment Plant, Page 1, Subparagraph 3 “Virtual Public Bid Opening of Price Submittal,* as follows:

**“...is on December 14, 2021 at 2:00 PM via a virtual meeting. Link to Virtual Bid Opening will be issued via an addendum.**

- d. Revise Document *Design-Build Instructions to Bidders (00210 DB) for Project No. 81000976/Contract No. 1643 – 60-Inch Force Main Repairs at the Blue River Wastewater Treatment Plant, Page 1, Section 2. Bid Due Date,* as follows:

**“Each Bidder’s Technical Approach Submittal and Price Submittal must be submitted in separate sealed envelopes/packages to the Project Manager at KC Water services, Terrace Level, KC Water Services, 4800 E. 63<sup>rd</sup>. Street, Kansas City, MO 64130, on or before 2:00 p.m. on November 12, 2021 (the “Bid Due Date”)...”**

- e. Revise Document *Design-Build Instructions to Bidders (00210 DB) for Project No. 81000976/Contract No. 1643 – 60-Inch Force Main Repairs at the Blue River Wastewater Treatment Plant, Page 1, Section 3. Public Bid Opening Date,* as follows:



**On December 14, 2021 at 2:00 p.m., (the "Public Bid Opening Date"), in a virtual meeting, the City will publicly announce the scores earned by each Technical Approach submittal, and then will publicly open and read aloud the corresponding Price Submittal portion of that Bid.**

**NOTE: Bidders must acknowledge receipt of this Addendum by listing the number and date, where provided, on the Bid Form - Document 00410.**



## **ADDENDUM NUMBER 5**

Project Number: 81000976/1643

Project Title: 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

ISSUE DATE: December 9, 2021

Bidders are hereby notified that the Bidding and Contract Documents for the above project, for which Bids are to be received on **December 14, 2021**, are amended as follows:

Information to Bidders The following is provided to Bidders for information only:

Due to the current “KC Re-Opening Plan” which includes limiting the number of individuals in City Hall, we would like to communicate the plans for handling the Public Bid Opening for **December 14, 2021**.

1. We will allow Bidders to submit their bids at City Hall, however the Bid Box will be placed in the vestibule area on the outside of the security checkpoint on the North Entrance.
2. The Bid Box will be removed at 2:00PM per the Bidding Instructions.
3. We are offering a virtual meeting via the link and information for Microsoft Teams. The Bid Reading will be “Live” through any computer, tablet or mobile device using the provided link. You can also choose to call-in using the number provided as well
4. The Bid Results will be posted to the KCMO Planroom like our normal process.

## Microsoft Teams meeting

**Join on your computer or mobile app**

[Click here to join the meeting](#)

**Or call in (audio only)**

[+1 872-212-5076,,970226535#](#) United States, Chicago

Phone Conference ID: 970 226 535#

[Find a local number](#) | [Reset PIN](#)

**NOTE: Bidders must acknowledge receipt of this Addendum by listing the number and date, where provided, on the Bid Form - Document 00410.**



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## DESIGN-BUILD INVITATION TO BID

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

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The General Services Department of Kansas City, Missouri is soliciting Design Build services and will receive sealed Technical Approach and Price Submittals until **2:00 PM**, on **October 19, 2021** at **KC Water Services, 4800 E. 63<sup>rd</sup> Street, Kansas City, MO 64130** for **Project No. 81000976 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant**. See schedule below for public bid opening.

**Mandatory Pre-Bid Conference, September 28, 2021, at 9:00 a.m.** in the Training Room, Blue River WWTP, 7300 Hawthorn Rd, Kansas City, MO 64120. Accommodation will be made to attend virtually if requested prior to the date of the mandatory pre-bid conference, as needed.

**Technical Approach Submittal and Price Submittal** due in separate sealed envelopes/packages to Contract Manager of Procurement Services at KC Water Services, Terrace Level, 4800 E. 63<sup>rd</sup> Street, Kansas City, MO 64130, on or before **2:00 p.m. on October 19, 2021**.

**Virtual Public Bid Opening of Price Submittal** is on **November 16, 2021 at 2:00 p.m.**, in the Committee Room 102W, 1<sup>st</sup> Floor, City Hall, 414 E. 12th Street, Kansas City, MO 64106. Link to Virtual Bid Opening will be issued via an addendum.

City desires that Minority Business Enterprises (MBE) and Women's Business Enterprises (WBE) have a maximum opportunity to participate in the performance of City contracts. The goals for this specific Project are **(12%) MBE** participation and **(12%) WBE** participation.

Bidding and Background Documents will be available online to all interested parties at the Kansas City, Missouri Plan Room, <http://www.kcmoplanroom.org>. All addenda will be posted at this location. Any document or plan may be viewed or downloaded from this location.

Bidders are requested to attend the Mandatory Pre-Bid Conference at **September 28, 2021, at 9:00 a.m.** in the Training Room at **Blue River WWTP, 7300 Hawthorn Rd, Kansas City, MO 64120**.

Project Manager: Kevin White  
Phone Number: (816) 513-0213  
E-mail: [Kevin.White@kcmo.org](mailto:Kevin.White@kcmo.org)

Procurement Officer: Darrell Everette  
Phone Number: (816) 513-0798  
E-mail: [Darrell.everette@kcmo.org](mailto:Darrell.everette@kcmo.org)

View all procurement and contracting opportunities at <http://www.kcmo.org>.



## DESIGN-BUILD INSTRUCTIONS TO BIDDERS

Project Number **81000976/1643**

Project Title **60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant**

- 
1. **Introduction.** This is an Invitation for Bids (“IFB”) issued by the General Services Department of Kansas City, Missouri (“City”) to solicit a sealed Technical Approach Submittal and a sealed Price Submittal (collectively, “Bid”) from Design Builders for **Project No. 81000976 – 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant** (“Project”).
  2. **Bid Due Date.** Each Bidder's Technical Approach Submittal and Price Submittal must be submitted in separate sealed envelopes/packages to Manager of Procurement Services at City Hall, 1<sup>st</sup> Floor-Rm 102W, 414 East 12<sup>th</sup> Street, Kansas City, MO 64106, on or before 2:00 p.m. on October 19, 2021 (the “Bid Due Date”). The outside of the Technical Approach Submittal envelope/package shall include Bidder's name and address and shall be labeled “Invitation for Bid – Technical Approach Submittal for **Project No.81000976 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant.** **(The Technical Approach Submittal cannot contain any reference to the cost of the project.** Section 2-1585, City Code of Ordinances). The outside of the Price Submittal envelope/package shall include Bidder's name and address and shall be labeled “Invitation for Bid – Price Submittal for the **Project No. 81000976 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant.**”
  3. **Public Bid Opening Date.** **On November 16, 2021 at 2:00 p.m.,** (the “Public Bid Opening Date”), in a virtual meeting, the City will publicly announce the scores earned by each Technical Approach submittal, and then will publicly open and read aloud the corresponding Price Submittal portion of that Bid. **The 48-hour period for providing HRD documents (e.g., HRD Form 8, Contractor Utilization Plan/Request for Waiver) shall begin to run as of this date and time.**
  4. **Mandatory Pre-Bid Conference.** The City will hold a **mandatory** Pre-Bid Conference on **September 28, 2021, at 9:00 a.m. The Training Room, Blue River WWTP, Blue River WWTP, 7300 Hawthorn Rd, Kansas City, MO 64120.** Accommodation to attend virtually will be made if requested prior to the date of the pre-bid conference, as needed. Failure to attend shall result in a Bidder not being eligible to submit a Bid.
  5. **No Commitment by City.** Bids and any other information submitted by Bidders in response to this IFB shall become the property of the City. The City shall have no liability for any expense incurred by Bidders in the preparation of Bids or for any damage allegedly resulting from a Bidder's failure to be awarded the Contract for Design-Build Services (“Contract”) for the Project. Issuance of this IFB does not commit the City to enter into a Contract for the Project. The City makes no guarantee that an award of Contract will be made as a result of this IFB. The City reserves the right to accept or reject any or all Bids, to re-solicit for Bids, to temporarily or permanently abandon the procurement in whole or in part, to waive any informalities or minor technical inconsistencies, and/or to award one or more Contracts for all or any portion of the Project, when deemed by the City, in its sole discretion, to be most advantageous to the City and in its best interests.
  6. **Definitions.** The following definitions apply to this IFB and to all Technical Approach Submittals and Price Submittals submitted in response to this IFB. The definitions set forth in the Contract are also applicable.



- a. "Bidding Documents" include the Invitation For Bids (IFB), the Project Manual, the Bid Form, and the proposed Contract Documents (including all Addenda issued prior to the Bid Due Date as that term is defined in the IFB).
- b. "Consultant" means a person, firm, or corporation having a contract with City to furnish services as an independent professional associate or consultant (including, without limitation, as a construction manager, construction advisor, or program manager) with respect to the Project and who is identified as such in the Supplementary Conditions. The term "Consultant" also includes such person's, firm's, or corporation's agents, officers, directors, or employees.

7. Waiver of Bid Requirements. The City Manager or his delegate at any time may waive any requirements imposed by this solicitation or by any City regulation when failure to grant the waiver will result in an increased cost to the City and the requirement waived would be waived for all Bidders for this solicitation and it is in the best interest of the City to grant the waiver. The City Council at any time may waive any requirements imposed in this solicitation by the City's Code of Ordinances when it finds failure to grant the waiver will result in an increased cost to the City and the waived requirement would be waived for all Bidders for this solicitation and it is in the best interest of the City to grant the waiver. The City reserves the right to waive any irregularities and/or formalities as deemed appropriate.

8. Late Bids. Bids and modifications of Bids received after the exact hour and date specified for receipt will not be considered unless: (1) the Bid is sent via the U.S. Postal Service, common carrier or contract carrier, by a delivery method that guarantees the Bid will be delivered to the City prior to the submission deadline; or (2) if the Bid is submitted by mail, common carrier or contract carrier it is determined by the City that the late receipt was due solely to an error by the U.S. Postal Service, common carrier or contract carrier; or (3) the Bid is timely delivered to the City but is at a different City location than that specified in this IFB; or (4) the City extends the time after the deadline for a force majeure event that could potentially affect any or all Bidders meeting the deadline.

9. Interpretations and Addenda. All questions about the meaning or intent of the Bidding Documents may be directed to the Project Manager listed at the end of these Instructions to Bidders. Interpretations or clarifications considered necessary by the Project Manager in response to such questions will be issued by Addenda to all parties recorded as having received the Bidding Documents. Questions received less than ten (10) days prior to the date for opening of Bids may not be answered. Only answers issued by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect. Addenda may also be issued to modify the Bidding Documents as deemed advisable by the City.

10. Bid Security Requirements. All Bids submitted must be accompanied by a Bid deposit in the amount of five percent (5%) of the base Bid which shall be in the form of a Bid Bond (on the form provided in these Bidding Documents), Cashier's Check, Letter of Credit, Certificate of Deposit or other instrument approved in advance by the City. Prior to submittal of the Bid the City Treasurer must approve both the financial institution and text of a Letter of Credit. A Cashier's Check or a Certificate of Deposit shall be payable to the City Treasurer.

11. Forfeiture of Security. If a Bidder fails or refuses to execute the Contract when requested by the City, any Bid security given to the City shall immediately become due and payable and forfeited to the City as liquidated damages.

12. Mistake in Bid Security. By submitting a Bid, Bidder is agreeing to correct any mistakes on a Bid security submission when requested by the City. When such a mistake occurs and a Bidder fails or refuses to correct the mistake or execute the Contract when requested by the City, any Bid security shall be forfeited to the City and the Bidder shall also be subject to debarment and damages.

13. Rejection of All Bids. If the City rejects all Bids, the City may re-solicit Bids only from those Bidders who submitted a Bid pursuant to this IFB and/or use an expedited Bid submission schedule with or without re-advertising or issuing any other public notice when the City determines, in its sole discretion, that the delay due to the normal solicitation procedures would not be in the City's best interests.

14. Disclosure of Proprietary Information.

- a. A Bidder may restrict the disclosure of scientific and technological innovations in which it has a proprietary interest, or other information that is protected from public disclosure by law, which is contained in any portion of its Technical Approach Submittal by marking each page of each such portion of its Technical Approach Submittal prominently in at least 16-point font with the words "Proprietary Information"; printing each page of each such portion of its Technical Approach Submittal on a different color paper than the paper on which the remainder of the Technical Approach Submittal is printed; and segregating each page of each such portion of its Technical Approach Submittal in a sealed envelope/package, which shall prominently display, on the outside, the words "Proprietary Information" in at least 16-point font, along with Bidder's name and address.
- b. After either the Public Bid Opening Date or the rejection of all Bids, if a request is made under the Missouri Sunshine Law for access to portion(s) of a Bidder's Technical Approach Submittal that has been marked "Proprietary Information," as provided above, the City will notify that Bidder of the request, and it shall be the burden of that Bidder to establish that such portion(s) of its Technical Approach Submittal are exempt from disclosure under the law.

15. Contents of the Bid. The following information shall be provided by Bidders as part of the bidding process:

**NOTE:** The outside of each Bidder's Technical Approach Submittal envelope/package shall include Bidder's name and address and shall be labeled "Invitation for Bid – Technical Approach Submittal for Project No. **81000976 – 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant**" (Do not include any price or cost in the Technical Approach Submittal).

- a. **TECHNICAL APPROACH PART I - ORGANIZATION & KEY PERSONNEL (Bidder shall provide information for each of the sections below.)**
  - (1) Provide an organization chart showing the structure and positions of the team proposed to be assigned to the Project, including significant design subconsultants and construction subcontractors. Describe the organizational position, function, and responsibilities of each team member, showing reporting relationships and showing clear lines of authority and communication.
  - (2) Identify the following Key Personnel proposed for the Project. (**NOTE:** Key Personnel must be committed to the Project for its duration, and may not be removed or substituted without the City's prior written consent.)
    - (a) Design-Build Project Manager
    - (b) DOR Lead Architect
    - (c) GC Project Manager
    - (d) On-Site Field Superintendent
    - (e) QC/QA Manager
    - (f) Safety Officer
  - (3) For each of the Key Personnel, provide the following background information.
    - (a) Years of employment with current employer.
    - (b) City of residence.
    - (c) Identify any other projects this person will be involved with concurrently with the Project, and state the time commitment for the Project and each other project.
    - (d) Discuss professional registrations, education, certifications, and credentials held by this person that are applicable to the Project.
  - (4) Include the resume of each Key Personnel, showing relevant project experience, design-build experience, and experience on government contracts.

**b. TECHNICAL APPROACH PART II – PROJECT UNDERSTANDING AND APPROACH (Bidder shall provide information for each of the sections below.)**

- (1) Discuss generally the tasks involved in the Project.
- (2) Illustrate clearly and concisely Bidder's understanding of the technical elements that must be addressed for successful completion of the Project.
- (3) Describe key issues that might affect the Project schedule and how Bidder proposes to address them.
- (4) Discuss Bidder's understanding of the traffic control required for the Project, if applicable, and how traffic control will impact the Project schedule. Discuss any major traffic control issues that need to be addressed and Bidder's proposed solutions.
- (5) Identify any other special issues or problems that are likely to be encountered. Outline the manner in which Bidder suggests resolving them.
- (6) Outline key community relations issues and how they might be resolved.
- (7) Describe any difficulties Bidder anticipates encountering in serving the City, in light of the City's status as a municipality and public entity. Explain how Bidder plans to manage them.

**c. TECHNICAL APPROACH PART III – PROJECT CONTROLS PLAN**

**Bidder shall provide information for each of the sections below.**

- (1) Describe Bidder's suggested approach to maintaining the Project budget.
- (2) Identify Bidder's contingency plans for various performance issues that might be encountered on the Project.
- (3) Submit the Quality Control Plan for the Project.
- (4) Submit the Project Safety Plan for the Project.
- (5) Describe how Bidder proposes to address any unique safety issues for the Project.
- (6) Submit a preliminary resource-loaded CPM construction schedule with anticipated milestones for the Project without any reference to cost, prepared using Microsoft Project 2007 or later format.

**d. TECHNICAL APPROACH PART IV – PROJECT DESIGN SUBMITTAL (Bidder shall provide information for each of the sections below.)**

- (1) Provide a narrative commitment, if desired, to complete, and, or substantially complete the project for less calendar days than identified in the Contract. Note: Any new proposed calendar days will be subject to the all schedule requirements of the contract, including liquidated damages.
- (2) Provide a list of any substitutions used by the Bidder.
- (3) Technical Write-Up of the high-performance coating systems being proposed in the WORK.
- (4) Submit a preliminary construction schedule with anticipated milestones for the Project without any reference to cost. The schedule should be based on a days from a notice to proceed.

**16. Required Bid Submittals.**

**a. Technical Approach Submittals.**

- (a) All Technical Approach Submittals shall be organized and their Parts labeled with tabs as shown below, and provided in three-ring binders:

TA PART I – ORGANIZATION & KEY PERSONNEL

TA PART II – PROJECT UNDERSTANDING AND APPROACH

TA PART III – PROJECT CONTROLS PLAN

TA PART IV – PROJECT DESIGN SUBMITTAL

- (b) Each Bidder's Technical Approach Submittal shall be limited to fifty (50) pages, in no smaller than 12-point font on 8-1/2" x 11" paper, using one side of each page, and page numbered accordingly. Each section of the Technical Approach Submittal shall correspond to the Part of the Technical Approach Submittal noted in this IFB. Any information, in addition to the Parts of the Technical Approach Submittal, that is required by this IFB shall be labeled as such and submitted as appendices to the Technical Approach Submittal. Appendices will count toward the page number limit. Covers, Tables of Contents, and divider tabs will not count toward the page number limit, provided that no additional information is included on those pages. Bidder shall submit one (1) electronic copy on CD or thumb drive (PDF Format) and seven (7) copies of the Technical Approach Submittal.
- (c) The outside of the Technical Approach Submittal envelope/package shall include Bidder's name and address and shall be labeled "Invitation for Bid – Technical Approach Submittal for Project No. **81000976 – 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant.**"
- (d) Reverify that there is no cost or price information in the Technical Approach Submittal.

**b. Price Submittals.**

- (a) Price Submittals shall be submitted on the Bid Form (including the Affidavit of Intended Utilization) included in the Bidding Documents.
- (b) Price Submittals shall contain a contract price and bid price.
- (c) The Bid Price shall be the net present value or total cost of ownership as defined in 00410 Price Submittal. **The Bid Price SHALL NOT be the construction cost or contract price of the proposed WORK.**
- (d) The contract price shall be the cost of the construction of the proposed work.
- (e) Any Bid where the contract price is submitted as the bid price maybe be **DISQUALIFIED.**
- (f) The Price Submittal must be accompanied by Bid security in the amount of five percent (5%) of the construction cost of the base Bid, which shall be in the form of a bid bond (in the form provided in these Bidding Documents), cashier's check, letter of credit, certificate of deposit, or other instrument approved in advance by the City. Prior to submission of the Bid, the City Treasurer must approve both the financial institution issuing and the contents of any letter of credit. Any cashier's check or certificate of deposit must be made payable to the City Treasurer.
- (g) The outside of the Price Submittal envelope/package shall include Bidder's name and address and shall be labeled "Invitation for Bid – Price Submittal for Project No. **81000976 – 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant.**"

17. Consideration of Bids.

- a. All Technical Approach Submittals and documents, and meetings related thereto, shall be considered to be "closed records" and "closed meetings," respectively, as defined in Chapter 610,

RSMo (the "Missouri Sunshine Law") and therefore protected from disclosure until the Public Bid Opening Date.

- b.** The City will determine the lowest and best Bid. The two-stage selection process described herein will be used to determine the successful Bidder.

- (1) After submission of the Technical Approach Submittals and the Price Submittals on the Bid Due Date, the City will privately open the Technical Approach Submittals. The City may interview one, some or all of the Bidders that submit bids. Each Technical Approach Submittal will be evaluated and scored by the City based on the points system described below, with no reference to cost or price:

- TA PART I – ORGANIZATION & KEY PERSONNEL – 10 points
- TA PART II – PROJECT UNDERSTANDING & APPROACH – 20 points
- TA PART III – PROJECT CONTROLS PLAN – 10 points
- TA PART IV – PROJECT DESIGN SUBMITTAL – 60 points

- (a) The highest Technical Approach Submittal will be awarded 100 points.
- (2) Points will be added to each of the other Technical Approach (TA) Submittals corresponding to the 100 points and the original points earned by that Submittal.

For example:

TA Submittal	Number of Points	Score
Highest	94	100 pts.
2d Highest	87 (94-87=7)	93 pts. (100-7 points)
3d Highest	84 (94-84=10)	90 pts. (100-10 points)

- (3) On the Public Bid Opening Date, the City will publicly announce the scores earned by each Technical Approach Submittal, and then will publicly open and read aloud the corresponding Bid Price from the Price Submittal portion of that Bid. Each Bid Price will be scored based on the points system described below:

- (a) Each Price Submittal Score shall be calculated from the sum of the points for Bid Price of the work.
- (b) The lowest Bid Price of the work will be awarded 100 points.
- (c) 1.0 points will be deducted from each Price Submittals Score for each percentage that the Bid Price exceeds the lowest Bid Price, with each percentage rounded up to the next whole number prior to its deduction from the points earned by that Price Submittal.

For example:

Price Submittal	Amount	Percent High	Score
Lowest	\$1,510,000	0%	100 pts. (lose 0 pts.)
2d Lowest	\$1,546,000	2.3% (3%)	97 pts. (lose 3 pts.)
3d Lowest	\$1,629,000	7.8% (8%)	92 pts. (lose 8 pts.)

- c.** The lowest and best Bid is that Bid with the highest combined points for the Technical Approach Submittal and the Price Submittal, and that has been determined by the City to be responsive.
- d.** Bidder offers and agrees to comply with all terms, conditions, and requirements set forth in this IFB and the RFQ.
- e.** Bidder agrees that all representations made in its SOQ, its Technical Approach Submittal, and its Price Submittal shall continue to be binding on Bidder if it is the successful Bidder on the

Project, and that this IFB, the RFQ, Bidder's Technical Approach Submittal, Bidder's Price Submittal, and Bidder's SOQ shall be deemed incorporated into any Contract issued to Bidder for the Project.

18. Additional Information. The City reserves the right, in its sole discretion, to request additional information or documents from any or all Bidders, including supplements or corrections to the Bids.

19. City's Buy American and Missouri Preference Policies. It is the policy of the City that any manufactured goods or commodities used or supplied in the performance of any City contract or any subcontract thereto shall be manufactured or produced in the United States whenever possible. When Bids offer quality, price, conformity with specifications, term of delivery and other conditions imposed in the specifications that are equal, the City shall select the Bid that uses manufactured goods or commodities that are manufactured or produced in the United States. The City shall give preference to all commodities manufactured, produced, or grown within the State of Missouri and to all firms, corporations, or individuals doing business as Missouri firms, corporations or individuals, when quality is equal or better and delivered price is the same or less. It is the bidder's responsibility to claim these preferences.

20. Tax Clearance. Bidder will be required to furnish to OWNER sufficient proof from City's Commissioner of Revenue, verifying that Bidder is in compliance with the license and tax ordinances administered by City's Revenue Division as a precondition to OWNER making its first payment under any CONTRACT over \$160,000.00. Bidder will also be required to obtain proof of City tax compliance from all of its Subcontractors prior to the Subcontractors performing any Work.

21. Affirmative Action. It is the policy of the City that any person or entity entering into a contract with the City, will employ applicants and treat employees equally without regard to their race, color, sex, religion, national origin or ancestry, disability, sexual orientation, gender identity or age. Bidder will be required to comply with the City's Affirmative Action ordinance if Bidder is awarded a contract from the City totaling more than \$300,000.00. If you have any questions regarding the City's Affirmative Action requirements, please contact HRD at (816) 513-1836 or visit the City's website at [www.kcmo.org](http://www.kcmo.org).

22. MBE/WBE Program Requirements. City desires that Minority Business Enterprises (MBE) and Women's Business Enterprises (WBE) have a maximum opportunity to participate in the performance of City contracts. The goals for this specific Project are **(12%) MBE** participation and **(12%) WBE** participation. The City's HRD Forms and HRD Instructions for Construction Projects are incorporated into these Bidding Documents and the Contract Documents. The MBE/WBE Directory is available on the City's website at [www.kcmo.org](http://www.kcmo.org). Please call the Human Relations Department at (816) 513-1836 for assistance.

Successful Bidder shall be required to use City's Internet web based MBE/WBE Program Reporting System provided by City and protocols included in that software during the term of this Contract. When requested by the City, Bidder shall submit user applications to City's provided MBE/WBE Program Reporting System for all applicable personnel and shall require subcontractors/subconsultants to submit same.

23. Waiver of MBE/WBE Requirements. The City Council may waive any and all MBE/WBE requirements imposed by any Bidding Document or the MBE/WBE Ordinance and Contract with the lowest and best Bidder if the City Council determines a waiver is in the best interests of the City.

24. Forfeiture of Bid Bond for Failure to Make MBE/WBE Submissions. By submitting its Bid, Bidder is agreeing to the following: (1) Bidder has made by Bid opening a good faith effort to meet the MBE/WBE goals established for the Project; or Bidder will continue to make during the 48 hours after Bid opening a good faith effort to meet the MBE/WBE goals established for the Project; and (2) Bidder will timely submit its 00450 HRD Construction Contractor Utilization Plan/Request for Waiver (HRD Form 8) and 00450.01 Letter of Intent to Subcontract for each MBE/WBE listed on the 00450 HRD Construction Contractor Utilization Plan/Request for Waiver; and (3) Bidder will submit documentation of its good faith efforts to meet the MBE/WBE goals when requested by the City. Failure to meet these requirements in good faith will result in Bidder being debarred and forfeiting its Bid Bond.

25. Workforce Program Requirements. City desires that minorities and women have a maximum opportunity to practice their trades on city construction projects. The minimum company-wide goals are a ten percent (10%) minority workforce and two percent (2%) women workforce. The City's HRD Forms and HRD Instructions for Construction Projects are incorporated into these Bidding Documents and the Contract Documents.

Successful Bidder shall be required to use City's Internet web based Workforce Program Reporting System provided by City and protocols included in that software during the term of this Contract. When requested by the City, Bidder shall submit user applications to City's provided Workforce Program Reporting System for all applicable personnel and shall require subcontractors to submit same.

26. Contract Information Management System. Successful Bidder shall be required to use City's Internet web based Contract Information Management System/Project Management Communications Tool provided by City and protocols included in that software during the term of this Contract. Bidder shall submit user applications to City's provided Contract Information Management System for all personnel, subcontractors or suppliers as applicable.

27. Prevailing Wage Requirements. The successful Bidder shall pay the prevailing hourly rate of wages as determined by the Missouri Annual Wage Order and/or Federal Wage Determination set forth in the Project Manual. In case of a conflict between Missouri and Federal wage rates, the higher rate shall apply.

Successful Bidder shall be required to use City's Internet web based Prevailing Wage Reporting System provided by City and protocols included in that software during the term of this Contract. When requested by the City, Bidder shall submit user applications to City's provided Prevailing Wage Reporting System for all applicable personnel and shall require subcontractors to submit same.

28. Indemnification – City of Kansas City. The contract documents contains a requirement that Contractor shall indemnify, defend and hold harmless the City and any of its agencies, officials, officers, or employees from and against all claims, damages, liability, losses, costs, and expenses, including reasonable attorneys' fees, arising out of or resulting from any acts or omissions in connection with the contract, caused in whole or in part by Contractor, its employees, agents, or Subcontractors, or caused by others for whom Contractor is liable, including negligent acts or omissions of the City, its agencies, officials, officers, or employees. The contract requires Contractor to obtain specified limits of insurance to insure the indemnity obligation. Contractor has the opportunity to recover the cost of the required insurance in the Contract Price by including the cost of that insurance in the Bid amount.

29. On-Site Inspection. The Project Site will be available for inspection by Bidders. Bidders visiting the Project Site shall be responsible for their own safety. The Project Site shall be available for inspection by appointment from 9 AM to 3 PM each day Monday through Friday (holidays excepted). Bidders may contact the following individual from the Water Services Department for an appointment.

Contact: Kevin White

Phone: (816) 513-0213 /E-mail [Kevin.White@kcmo.org](mailto:Kevin.White@kcmo.org)

30. On-Site Inspection. The Project Site will be available for inspection by Bidders. Bidders visiting the Project Site shall be responsible for their own safety.

31. Forward all questions in writing to the following Project Manager and Contract Administrator. Questions received less than ten (10) days prior to the Bid Date may not be answered. Interpretations or clarifications considered necessary by the Project Manager in response to such questions will be issued by Addenda to all Bidders. Oral or other interpretations or clarifications shall be without legal effect, even if made at a Pre-Bid Meeting.

32. Equipment Selection Technical Approach Submittals shall include the Manufacturers of the high-performance coating systems in Specification 099600. If any Technical Approach Submittal contains high-performance coating systems not in Specification 099600 or a previously approved substitution, the bid **shall be disqualified.**

Kevin White, Project Manager  
Facilities Engineering Division  
4800 East 63<sup>rd</sup> Street  
(816) 513-0213 Phone  
E-mail: [Kevin.White@kcmo.org](mailto:Kevin.White@kcmo.org)

Darrell Everette, Contract Administrator  
Procurement Services, General Services Department  
414 East 12th Street, City Hall 1<sup>st</sup> Floor  
Kansas City, MO 64106  
(816) 513-0798 Phone  
Email: [darrell.everette@kcmo.org](mailto:darrell.everette@kcmo.org)



*For persons with disabilities needing reasonable accommodations please contact Jean Lawson at 816-513-6566. If you need to use the Relay Service, please dial 711.*





## DESIGN-BUILD BACKGROUND INFORMATION FORM

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

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(Proposer shall complete this form and return it as part of the **TECHNICAL APPROACH PART I – EXPERIENCE AND QUALIFICATIONS** submittal)

Each question below shall be answered on behalf of each of the Bidder, the DOR, and the GC by circling the appropriate response. Unless specifically stated otherwise in a question, the terms "you" or "your" refer to each of the Bidder, the DOR, and the GC. If any response is "Yes," provide a detailed explanation (attach additional sheets as necessary) that includes identification of the entity in question (i.e., Bidder, DOR, and/or GC) and all relevant information, including appropriate contact information.

Have any of your licenses and/or certificates of authority, or any of those of the DOR and any other design professional you anticipate involving in the Project, been subject to disciplinary action, in Missouri or in any other State, resulting in suspension, revocation, censure, probation, reprimand, or other discipline; or has such license number or certificate of authority number changed within the past five (5) years?

CIRCLE ONE:      Yes    No

Are you currently for sale or involved in any transaction to become acquired by another business entity?

CIRCLE ONE:      Yes    No

Are you currently in default on any loan agreement or financing agreement with any bank, financial institution, or other entity? If so, please specify date(s), details, circumstances, and prospects for resolution.

CIRCLE ONE:      Yes    No

Have you, your predecessor, successors, or Affiliates ever been found guilty in a criminal action or liable in a civil suit for fraud, any act of dishonesty, making any false claim or material misrepresentation, or violating any federal, state or local statute, law, Code regulation, or order related to design or construction?

CIRCLE ONE:      Yes    No

Are you a subsidiary, parent, holding company, or Affiliate of another company? If so, identify the other company and describe the relationship.

CIRCLE ONE:        Yes    No

Have you ever filed a claim against the City?

CIRCLE ONE:        Yes    No

Answer the following questions No. 7 through 20 with respect to the five (5) years immediately preceding the issue date of this RFQ.

Have you been a debtor in any bankruptcy proceeding?

CIRCLE ONE:        Yes    No

Have you, your predecessors, successors, or Affiliates been debarred, disqualified, declared ineligible, removed from, or otherwise prevented from bidding on, being awarded, or being allowed to perform on a government contract?

CIRCLE ONE:        Yes    No

Have you changed names?

CIRCLE ONE:        Yes    No

Has the U.S. Department of Labor's Occupational Safety and Health Administration or any State's workers' safety and health enforcement department cited and assessed penalties against you?

CIRCLE ONE:        Yes    No

Has there ever been a period when you were required by Missouri law or the law of any other State to maintain workers' compensation insurance but you were without workers' compensation insurance and were not a State-approved self-insurer?

CIRCLE ONE:        Yes    No

Have you (Bidder or GC) been required to pay back wages and/or penalties for your failure (not the failure of a subcontractor) to comply with the federal Davis-Bacon prevailing wage requirements or any State's prevailing wage requirements?

CIRCLE ONE:        Yes    No

Have you, your predecessors, successors, or Affiliates been found in violation of any U.S. or State regulations relating to taxes, employment matters (including wage scales, discrimination claims, collective bargaining matters, etc.), permit or licensing requirements, etc.?

CIRCLE ONE:        Yes    No

Has a citation or notice of violation been issued pursuant to any state or local environmental laws, the U.S. Clean Air Act, Clean Water Act, CERCLA, RCRA, TSCA, or similar environmental protection statute against you on a project, or against the owner of a project on which you were involved?

CIRCLE ONE:        Yes    No

Have you, your predecessors, successors, or Affiliates defaulted on a design or construction contract?

CIRCLE ONE:        Yes    No

Have you been required to pay liquidated damages on a construction project, public or private?

CIRCLE ONE:        Yes    No

Has any surety company made any payments on your behalf, or on behalf of any of your predecessors, successors, or Affiliates, as the result of a default or to satisfy any other claims made against a performance or payment bond, in connection with a public or private construction project?

CIRCLE ONE:        Yes    No

Has any insurance carrier cancelled or refused to renew any of your insurance policies, for any type of insurance?

CIRCLE ONE:        Yes    No

Have you, your predecessors, successors, or Affiliates filed a claim, for payment or otherwise, in a court or arbitration tribunal against the owner of any public or private construction project, or has any owner of any construction project filed a claim against you or any of your predecessors, successors, or Affiliates? Information need not be provided about disputes with another contractor, a subcontractor, or a supplier; about “pass-through” disputes in which the actual dispute was between a subcontractor and the project owner; or about disputes involving amounts less than \$50,000.

CIRCLE ONE:        Yes    No

Provide the following information:

ENTITY	YEARS IN BUSINESS	NUMBER OF EMPLOYEES	2018 GROSS RECEIPTS	2019 GROSS RECEIPTS	2020 GROSS RECEIPTS
Bidder					
DOR					
GC					

21. Provide the following information for all surety companies that have written bonds for Proposer and GC during the past five (5) years:

BIDDER		
Surety Company	Address & Telephone No.	Dates during which bonds were written

GC		
Surety Company	Address & Telephone No.	Dates during which bonds were written

Bidder: \_\_\_\_\_

CITY OF FOUNTAINS  
HEART OF THE NATION



KANSAS CITY  
MISSOURI

## DESIGN-BUILD BID FORM – PRICE SUBMITTAL

Project Number: **81000976/1643**

Project Title: **60-Inch Force Main Repairs at the Blue River Wastewater Treatment Plant**

1. The undersigned Bidder, having examined the Bidding Documents, related documents and the Site of the Work, and being familiar with all the conditions affecting the proposed Work, including Laws and Regulations and the availability of materials and supplies, agrees, if this Bid is selected by CITY, to enter into a Contract with CITY in the form included in the Contract Documents to furnish all labor and materials, equipment and services necessary for the proper completion of the Work in accordance with the Contract Documents, including design services and general construction work at the price(s) stated below, which stated sums include fees and all other charges applicable to materials, appliances, labor and all things subject to and upon which other charges may be levied.
2. Bidder agrees the Contract Documents will comprise the entire agreement between CITY and Bidder. The Contract Documents are identified in the General Conditions and are incorporated into and made part hereof this Bid Form/Contract by reference.
3. The Bid Price(s) shall be shown in numeric figures only.

Design Services for the Proposed Work (A) \$ \_\_\_\_\_

Construction Services for the Proposed Work (B) \$ \_\_\_\_\_

BASE CONTRACT PRICE IN NUMERIC FIGURES (C=A+B) \$ \_\_\_\_\_

### ALLOWANCES

A. Non-Destructive Testing to be completed by Xylem (D) \$ 153,250.00

TOTAL CONTRACT PRICE IN NUMERIC FIGURES (E=C+D) \$ \_\_\_\_\_

**TOTAL BASE BID PRICE IN NUMERIC FIGURES (F) \$ \_\_\_\_\_**

4. The undersigned Bidder has given City's Project Manager written notice of all conflicts, errors or discrepancies that it has discovered in the Contract Documents and the written resolution thereof by the Project Manager or by the Program Manager is acceptable to Bidder.
5. The undersigned Bidder agrees that this Price Submittal Bid shall remain subject to selection by CITY, and may not be withdrawn for ninety (90) days after the day Price Submittal Bids are opened.
6. The undersigned Bidder certifies that this Price Submittal Bid contains no modifications, deviations, riders or qualifications.
7. Form 01290.02 Schedule of Values contains prices included in the Base Bid, and are incorporated into this Bid. Form must be completed and returned with this Bid.
8. Form 00413 Allowances contain prices included in the Base Bid, and are incorporated into this Bid. Form(s) must be completed and returned with this Bid.
9. Form 00420 - Alternates contains work and prices which modify the Base Bid, if selected, and is incorporated into this Bid. This form must be completed and returned with this Bid.

Bidder: \_\_\_\_\_

10. The undersigned Bidder acknowledges receipt of the following addenda listed by number and date appearing on each addendum:

Addendum Number	Dated	Addendum Number	Dated
(_____)	(_____)	(_____)	(_____)
(_____)	(_____)	(_____)	(_____)
(_____)	(_____)	(_____)	(_____)
(_____)	(_____)	(_____)	(_____)

11. (By submitting its bid, Bidder is agreeing to meet or exceed the minimum employment goals of 12% minority and 12% women during the term of its contract with the City, or request a waiver of the goals. If a waiver is requested, Bidder must establish good faith efforts towards meeting the goals as set forth in the HRD Instructions for Construction Contracts and the City’s Workforce Ordinance. Should Bidder fail to meet or exceed the minimum employment goals or otherwise establish that Bidder is entitled to a waiver under circumstances in which Bidder has previously failed to meet or exceed the goals on one or more occasions with the twenty-four month period immediately preceding the completion of the Work under this Bid Form/Contract, Bidder may be suspended from participating, either as a contractor or subcontractor, on any future contract with the City for a period ranging from thirty days to six months as further specified in the Contract Documents.

12. By submitting its bid, Bidder warrants that if its bid should exceed \$300,000.00 and Bidder employs fifty (50) or more people, Bidder has an affirmative action program in place and will maintain the affirmative action program in place for the duration of its contract with the City. Bidder further warrants that it will comply with the affirmative action requirements contained in the General Conditions as incorporated by reference into this Bid Form/Contract.

13. Section 13 through Section 15 constitutes the Affidavit of Intended Utilization required to be submitted by Bidders.

14. By submitting its bid, Bidder is agreeing to the following: (1) Bidder has made by bid opening a good faith effort to meet the MBE/WBE/DBE goals established for the project; or Bidder will continue to make during the 48 hours after bid opening a good faith effort to meet the MBE/WBE/DBE goals established for the project; and (2) Bidder will timely submit its **00450 HRD 08 Contractor Utilization Plan/Request for Waiver** and **00450.01 Letter of Intent to Subcontract** for each MBE/WBE listed on the 00450 HRD 08 Construction Contractor Utilization Plan/Request for Waiver;; and (3) Bidder will submit documentation of its good faith efforts to meet the MBE/WBE/DBE goals when requested by the City. Failure to meet these requirements in good faith will result in Bidder forfeiting its bid bond.

**PROJECT GOALS:**                      12   % MBE              12   % WBE            \_\_\_\_\_ % DBE

**BIDDER PARTICIPATION:**    \_\_\_\_\_ % MBE            \_\_\_\_\_ % WBE            \_\_\_\_\_ % DBE

15. To the best of Bidder’s knowledge, the following are names of certified MBEs and/or WBEs with whom Bidder, or Bidder’s subcontractors, presently intend to contract with if awarded the Contract on the above project: **(All firms must currently be certified by Kansas City, Missouri Human Relations Department)**

a. Name of M/WBE Firm \_\_\_\_\_

Bidder: \_\_\_\_\_

Address \_\_\_\_\_  
Telephone No. \_\_\_\_\_  
I.R.S. No. \_\_\_\_\_  
Area/Scope of work \_\_\_\_\_  
Subcontract amount \_\_\_\_\_

b. Name of M/WBE Firm \_\_\_\_\_  
Address \_\_\_\_\_  
Telephone No. \_\_\_\_\_  
I.R.S. No. \_\_\_\_\_  
Area/Scope of work \_\_\_\_\_  
Subcontract amount \_\_\_\_\_

c. Name of M/WBE Firm \_\_\_\_\_  
Address \_\_\_\_\_  
Telephone No. \_\_\_\_\_  
I.R.S. No. \_\_\_\_\_  
Area/Scope of work \_\_\_\_\_  
Subcontract amount \_\_\_\_\_

d. Name of M/WBE Firm \_\_\_\_\_  
Address \_\_\_\_\_  
Telephone No. \_\_\_\_\_  
I.R.S. No. \_\_\_\_\_  
Area/Scope of work \_\_\_\_\_  
Subcontract amount \_\_\_\_\_

e. Name of M/WBE Firm \_\_\_\_\_  
Address \_\_\_\_\_  
Telephone No. \_\_\_\_\_  
I.R.S. No. \_\_\_\_\_  
Area/Scope of work \_\_\_\_\_  
Subcontract amount \_\_\_\_\_

f. Name of M/WBE Firm \_\_\_\_\_  
Address \_\_\_\_\_  
Telephone No. \_\_\_\_\_  
I.R.S. No. \_\_\_\_\_  
Area/Scope of work \_\_\_\_\_  
Subcontract amount \_\_\_\_\_

*(List additional MBE/WBEs, if any, on additional pages and attach to this form)*

16. By submitting its bid, Bidder is agreeing it will identify and timely submit within 48 Hours after Bid opening those MBE/WBE subcontractors with dollar amounts and scopes of work, which apply to or exceed the MBE/WBE goals for the Project on the **00450 HRD 08 Contractor Utilization Plan/Request for Waiver**.

17. Bidder agrees that failure to meet or exceed the MBE/WBE Goals for the above project will require the Director of Human Relations to recommend disapproval of the bid unless the Director of Human Relations finds the Bidder established good faith efforts towards meeting the goals as set forth in the HRD Forms and Instructions for Construction Projects and the City's MBE/WBE Ordinance.

Bidder: \_\_\_\_\_

Business Entity Type:

- Missouri Corporation
- Foreign Corporation
- Fictitious Name Registration
- Sole Proprietor
- Limited Liability Company
- Partnership
- Joint Venture
- Other: (Specify) \_\_\_\_\_

**BIDDER**

Legal name & address of Bidder, person firm, partnership, corporation, or association submitting Bid:

\_\_\_\_\_

Phone No: \_\_\_\_\_

Cell No: \_\_\_\_\_

Facsimile No: \_\_\_\_\_

Bidder's E-Mail: \_\_\_\_\_

\_\_\_\_\_

Federal ID. No. \_\_\_\_\_

I hereby certify that I have authority to execute this document on behalf of Bidder, person, firm, partnership, corporation or association submitting Bid.

By: \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Print Name)

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

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

(Attach corporate seal if applicable)

**NOTARY**

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

My Commission Expires: \_\_\_\_\_





# EXPERIENCE AND REFERENCE SUMMARY

Project/Contract Numbers: 81000976/1643

Project Title: 60-Inch Force Main Repairs at the Blue River Wastewater Treatment Plant

<b>Firm's Legal Name</b>	
<b>Mailing Address</b>	
<b>Contact – Name &amp; Email</b>	
<b>Contact – Phone &amp; Fax</b>	

NO.	PROJECT & LOCATION	OWNER NAME & ADDRESS CONTACT & PHONE NUMBER	PROJECT DURATION & DATE COMPLETED	\$ VALUE
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				



## EXPERIENCE AND REFERENCE SUMMARY – CURRENT PROJECTS

Project/Contract Numbers: 81000976/1643

Project Title: 60-Inch Force Main Repairs at the Blue River Wastewater Treatment Plant

Page \_\_\_\_ of \_\_\_\_

<b>Firm's Legal Name</b>	
<b>Mailing Address</b>	
<b>Contact – Name &amp; E-Mail</b>	
<b>Contact – Phone &amp; Fax</b>	

NO.	PROJECT & LOCATION	CONTRACT AMOUNT/ % COMPLETE	OWNER NAME & ADDRESS CONTACT & PHONE NUMBER	LENGTH, DIAMETER & MATERIAL OF CONSTRUCTION OR DESCRIPTION OF REPAIRS	START DATE
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					



## LIST OF EQUIPMENT AND STAFFING AVAILABLE FOR PROJECT

Project/Contract Numbers: 8100976/1643

Project Title: 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

Page \_\_\_\_ of \_\_\_\_

	EQUIPMENT AVAILABLE FOR CONSTRUCTION (OR ATTACH LIST)		STAFFING BREAKDOWN	NUMBER OF EACH CATEGORY
1.		1.	OFFICE STAFF	
2.		2.	SUPERVISORS	
3.		3.	FIELD STAFF – CREW FOREMEN	
4.		4.	FIELD STAFF – OPERATORS (NOT FOREMEN)	
5.		5.	FIELD STAFF – LABORERS (NOT FOREMEN)	
6.		6.		





# ALTERNATES

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

Page \_\_\_\_\_ of \_\_\_\_\_

No: 1	Description: 365 day bid escalation	<input type="checkbox"/> Add [+] <input type="checkbox"/> Deduct [-]	Price in Figures:  \$
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No:	Description:	<input type="checkbox"/> Add [+] <input type="checkbox"/> Deduct [-]	Price in Figures:  \$
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No:	Description:	<input type="checkbox"/> Add [+] <input type="checkbox"/> Deduct [-]	Price in Figures:  \$
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No:	Description:	<input type="checkbox"/> Add [+] <input type="checkbox"/> Deduct [-]	Price in Figures:  \$
-----	--------------	---	-----------------------------

No:	Description:	<input type="checkbox"/> Add [+] <input type="checkbox"/> Deduct [-]	Price in Figures:  \$
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No:	Description:	<input type="checkbox"/> Add [+] <input type="checkbox"/> Deduct [-]	Price in Figures:  \$
-----	--------------	---	-----------------------------

No:	Description:	<input type="checkbox"/> Add [+] <input type="checkbox"/> Deduct [-]	Price in Figures:  \$
-----	--------------	---	-----------------------------

No:	Description:	<input type="checkbox"/> Add [+] <input type="checkbox"/> Deduct [-]	Price in Figures:  \$
-----	--------------	---	-----------------------------





## BID BOND

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

Bond Number \_\_\_\_\_

**KNOW ALL MEN BY THESE PRESENTS:** That \_\_\_\_\_ of \_\_\_\_\_, as Principal, and \_\_\_\_\_ as Surety, hereby bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents unto KANSAS CITY, MISSOURI, a constitutionally chartered municipal corporation, as Obligee, in the sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_), lawful money of the United States.

**WHEREAS**, Principal is herewith submitting its Bid to enter into a contract with Kansas City for the above referenced project,

**NOW, THEREFORE** the condition of this obligation is such that if the Principal is awarded the contract the Principal will, within the time required, enter into a contract and give a good and sufficient surety bonds to secure the performance of the terms and conditions of the contract and for the prompt payment of all labor and material furnished in the prosecution thereof as required by the contract documents, then this obligation shall be void; otherwise the Principal and Surety will immediately pay unto the Obligee the full amount of this bond as liquidated damages for failure to fulfill the conditions of this obligation, but in no event shall the Surety's liability exceed the penal sum hereof.

Signed, sealed and delivered this \_\_\_\_\_ day of \_\_\_\_\_.

### BIDDER AND PRINCIPAL

Name, address and facsimile number of Bidder and Principal

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

I hereby certify that I have authority to execute this document on behalf of Bidder and Principal.

By: \_\_\_\_\_

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

(Attach corporate seal if applicable)

**SURETY**

Name, address and facsimile number of Surety:

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I hereby certify that (1) I have authority to execute this document on behalf of Surety; (2) Surety has an A.M. Best rating of A- or better; (3) Surety is 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 Circular 570 (most current revision) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury; and (4) Surety is duly licensed to issue bonds in the State of Missouri and in the jurisdiction in which the Project is located.

By: \_\_\_\_\_

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

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

(Attach seal and Power of Attorney)



**HRD INSTRUCTIONS  
FOR CONSTRUCTION CONTRACTS**

**PART A. MINORITY/WOMEN BUSINESS ENTERPRISE REQUIREMENTS**

**I. City's MBE/WBE Program.**

- A. The City has adopted a Minority/Women Business Enterprise ("MBE/WBE") Program (Sections 3-421 through 3-469, Code of Ordinances) (the "Program") to implement the City's policy of supporting the fullest possible participation in City contracts and change orders of firms owned and controlled by minorities and women. Each construction contract may have an MBE and/or WBE goal for participation. An MBE or WBE goal is a numerical objective the City has set for the contract that may be awarded pursuant to these bid specifications. Goals are stated as a percentage of contract dollars. For example, if an MBE goal for a contract is 10% and a Bidder submits a bid of \$100,000, the goal for MBE participation would equal \$10,000. The specific MBE/WBE goals on this contract are set forth elsewhere in the bid specifications.
- B. These Human Relations Department ("HRD") Forms & Instructions are part of the BIDDING DOCUMENTS and CONTRACT DOCUMENTS as defined in the General Conditions. By submitting a Bid, the Bidder agrees, as a material term of the contract, to carry out the City's MBE/WBE Program by making good faith efforts to include certified MBE/WBEs in the contract work to the extent of the goals listed for the contract and to the fullest extent consistent with submitting the lowest and best bid to the City. Bidder agrees that the Program is incorporated into this document and agrees to follow the Program. Although it is not a requirement that a Bidder in fact meet or exceed both the MBE and WBE Goals, it is a requirement for approval of the Bid that a Bidder objectively demonstrate to the City that good faith efforts have been made to meet the Goals. Bidders must attempt to meet both the MBE and WBE goals and request a waiver if either is not met.
- C. The following HRD Forms are attached and must be used for MBE/WBE submittals:
1. Contractor Utilization Plan/Request for Waiver (HRD Form 8); and
  2. Letter of Intent to Subcontract (HRD Form 00450.01); and
  3. Timetable for MBE/WBE Utilization (HRD Form 10); and
  4. Request for Modification or Substitution (HRD Form 11); and
  5. Contractor Affidavit for Final Payment (Form 01290.14); and
  6. Subcontractor Affidavit for Final Payment (Form 01290.15).

Warning: The City only gives MBE/WBE credit for a Bidder's use of City certified MBE/WBEs. A certified MBE/WBE firm is a firm that has been certified by the City's Human Relations Department as such. An MBE/WBE firm must be certified before the date on which the contractor utilization plan is due. Certified MBEs and WBEs are listed in the M/W/DBE Kansas City Mo. Online Directory, which is available on the City's website at [www.kcmo.org](http://www.kcmo.org). Before a Bidder submits a bid, Bidder should contact HRD and consult the directory to make sure any firm proposed for use for MBE/WBE participation has been certified.

## II. Required Submissions Following Bid Opening.

- A. Bidder must submit the following documents within forty-eight (48) hours of bid opening:
1. **Contractor Utilization Plan/Request for Waiver (HRD Form 8).** This form states a Bidder's plan to use specific certified MBE/WBEs in the performance of the contract and includes the following:
    - a. The work to be performed by each MBE/WBE and the amounts each is to be paid for the work; and
    - b. The name, address, race or ethnic origin, gender and employer identification number or social security number of each MBE/WBE that will perform the work.
    - c. An automatic request for waiver in the event Bidder has not met or exceeded the MBE and/or WBE goals for the contract but believes that it has made good faith efforts to meet or exceed the goals and desires a waiver of the goals. If a waiver is requested, HRD will examine the Bidder's documentation of good faith efforts and make a recommendation to grant or deny the waiver. HRD will recommend a waiver be granted only if the Bidder has made good faith efforts to obtain MBE/WBE participation.
  2. **Letter(s) of Intent to Subcontract (HRD Form 00450.01).** A letter must be provided from each MBE/WBE listed on the Contractor Utilization Plan. These letters verify that the MBE/WBE has agreed to execute a formal agreement for the work and indicate the scope of work to be performed and the price agreed upon for the work.

## III. Required Submission when Requested by City.

- A. Bidder must submit the following documents when requested by City:
1. **Timetable for MBE/WBE Utilization (HRD Form 10).**
  2. **Documentation of good faith efforts.**

## IV. Required Monthly Submissions during term of Contract.

- A. Bidder must submit the following document on a monthly basis if awarded the contract:
1. **M/WBE Monthly Utilization Report.** This report must be submitted to the Director by the 15<sup>th</sup> of each month. Failure to submit timely reports may result in delays in processing of current and future contract approvals and payment applications. The preferred method of submission of this report is through the B2GNow Diversity Management System (B2GNow) HRD Form 00485.01 may be submitted in lieu of the B2GNow system under certain conditions, with the consent of HRD.

## V. Required Submittals for Final Contract Payment.

- A. Contractor must submit the following documents with its request for final payment under the contract:
1. **Contractor Affidavit for Final Payment (Form 01290.14)**

2. **Subcontractor Affidavit(s) for Final Payment (Form 01290.15)**
3. **Final B2GNow Monthly Contract Audit Report with all payment audits confirmed.**
- 4.

#### **VI. Additional Submittals.**

- A. Contractor may be required to make additional submittals during the term of the Contract, including **Request for Modification or Substitution (HRD Form 11)**. Refer to Section IX, Modification of the Contractor Utilization Plan or Substitution of an MBE/WBE, for additional instructions on when this form must be submitted.

#### **VII. MBE/WBE Participation Credit.**

- A. The following shall be credited towards achieving the goals:
  1. The total contract dollar amount that a prime contractor has paid or is obligated to pay to a subcontractor that is a certified MBE or WBE, except as otherwise expressly provided for herein.
  2. The total contract dollar amount that a prime contractor that is a certified MBE or WBE performed itself.
  3. Sixty percent (60%) of the total dollar amount paid or to be paid by a prime contractor to obtain supplies or goods from a supplier who is a certified MBE or WBE.
  4. Ten percent (10%) of the total dollar amount paid or to be paid by a prime contractor to obtain supplies or goods from a supply broker who is a certified MBE or WBE.
  5. One hundred percent (100%) of the total dollar amount paid or to be paid by a prime contractor to a manufacturer of construction supplies who is a certified MBE or WBE.
  6. Subcontractor participation with a lower tier MBE/WBE subcontractor using one of the above methods of participation.
- B. **NO CREDIT**, however, will be given for the following:
  1. Participation in a contract by a MBE or WBE that does not perform a commercially useful function as defined by the Program; and
  2. Any portion of the value of the contract that an MBE or WBE subcontractor subcontracts back to the prime contractor or any other contractor who is not a qualified MBE/WBE; and
  3. Materials and supplies used on the contract unless the MBE/WBE is responsible for negotiating the price, determining quality and quantity, ordering the materials and installing (where applicable) and paying for material itself; and
  4. Work performed by an MBE or WBE in a scope of work other than that in which the MBE or WBE is currently certified.

#### **VIII. Methods for Securing Participation of MBE/WBEs and Good Faith Efforts.**

- A. A bidder is required to make good faith efforts to achieve the MBE/WBE goals. Good faith efforts are efforts that, given all relevant circumstances, a Bidder actively and aggressively seeking to meet the goals can reasonably be expected to make. Good faith efforts must be made before the Bidder submits a Contractor Utilization Plan, in other words, within 48 hours of bid opening. However, efforts made to increase participation of MBEs and WBEs following submission of the CUP can be considered as evidence of good faith efforts to meet the goals.
- B. In evaluating good faith efforts, the Director of HRD will consider whether the Bidder has performed the following, along with any other relevant factors:
1. Advertised for at least 15 calendar days prior to the bid or proposal due date opportunities to participate in the contract in general circulation media, trade and professional association publications, small and minority business media, and publications of minority and women's business organizations which are included in a list along with their current contact information identified on the directory as the list of publications available to publish such advertisements, which list shall be updated by HRD no less than every three (3) month.
  2. Sent written notices at least fifteen (15) calendar days prior to the bid or proposal due date containing the information required in section (9) below, by certified mail, e-mail, or facsimile, to at least 80% of MBEs and WBEs which are included in a list along with their contact information identified on the directory as the list of organizations available to receive such notices, which list shall be updated by HRD no less than every three (3) months.
  3. Sent written notices, containing the information required by section (9) below, by certified mail, e-mail or facsimile, to at least 80% of MBEs and WBEs listed on the directory certified in the applicable scopes of work for the particular bid soliciting their participation in the contract at least 15 calendar days prior to the bid or proposal due date.
  4. Attempted to identify portions of the work for qualified MBE and/or WBE participation in order to increase the likelihood of meeting the goals, including breaking down contracts into economically feasible units that take into consideration the capacity of available MBE/WBEs appearing on the HRD directory.
  5. At any time prior to submission of the CUP or submittal of a request for modification of a CUP, requested assistance in achieving the goals from the director and acted on the director's recommendations.
  6. Conferred with certified MBEs and WBEs which inquired about or responded to the bid solicitation and explained to such MBEs and WBEs the scope and requirements of the work for which their bids or proposals were solicited, and if not all certified MBEs and WBEs in the particular scopes listed on the directory have inquired about or responded to the bid solicitation for each scope of work, then contact by certified mail, e-mail or telephone the greater of ten (10) or 80% of additional certified MBEs and WBEs in the particular scopes of work listed on the directory and offer to confer with such MBEs and WBEs for such particular scope of work and request such MBEs and WBEs to submit a proposal.

7. Attempted to negotiate in good faith with certified MBEs and WBEs which responded to the bid solicitation or those certified MBEs and WBEs that were conferred with as contemplated in section (6) above, and other qualified MBEs and WBEs, at the option of the bidder, proposer, or contractor, as applicable, to perform specific subcontracts, not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities by the bidder, proposer, or contractor; in the event an MBE or WBE is the low bid, but rejected as unqualified, the bidder, proposer, or contractor and the director or board, as applicable, shall provide sound reasons for rejecting such MBE or WBE.
8. Attended pre-bid meeting when such meetings were indicated in the solicitation of bids or otherwise by the bidder, proposer, or contractor, as applicable or by the director provided the director provides written direction to the bidder, proposer, or contractor at the time the goals are recommended.
9. Written notices and advertisements to be provided pursuant to sections (1), (2) and (3) above shall include the following information:
  - a. The bid due date;
  - b. The name of the project;
  - c. The address or general location of the project;
  - d. The location of plans and specifications for viewing;
  - e. Contact information of the prime contractor;
  - f. A general description of the scopes of work that are the subject of the solicitation;
  - g. The goals established for the applicable contract, and if the goals are still subject to board approval, then a statement that the goals as stated are preliminary and are subject to board approval;
  - h. If the project or any portion of the project is subject to prevailing wage then a statement that all or a portion of the project will be subject to prevailing wage, as applicable; and if only a portion of the scopes are subject to prevailing wage, then identification of such scopes provided that such scopes are known as of the time of bid solicitation;
  - i. The date and time of any pre-bid meeting(s), if any, which have been scheduled by the bidder, proposer, contractor or developer as of the bid solicitation; and

Any other information deemed relevant by the bidder, proposer, contractor or developer, as applicable, or the director to the extent the director provides written direction to the bidder, proposer, contractor or developer of such additional information at the time the goals are recommended by the director. 8. Within five (5) working days after drawing the bid specifications, sent certified letters, verifiable e-mails or proof of facsimiles to certified MBEs and WBEs listed in the M/W/DBE Kansas City Mo. Online Directory.

C. A Bidder may be required to give the City documentation to prove that it made good faith

efforts. The Bidder will be contacted by the City with further instructions about when this documentation must be submitted.

#### **IX. Modification of the Contractor Utilization Plan or Substitution of an MBE/WBE.**

A. After bid opening, a Bidder or Contractor may need to substitute an MBE and/or WBE or request that the amount of MBE/WBE participation listed in its Contractor Utilization Plan be modified. Bidder or Contractor must file a **Request for Modification or Substitution (HRD Form 11) prior to actual substitution and within a reasonable time after learning that a modification or substitution is necessary.** The Director may approve substitutions or modifications and upon approval, the modifications and substitutions will become an amendment to the Contractor Utilization Plan. Modifications or substitutions may be approved when:

1. The Director finds that the Bidder or Contractor made and provided evidence of good faith efforts to substitute the MBE/WBE listed on the Contractor Utilization Plan with other certified MBE/WBEs for the scope of work or any other scope of work in the contract; and
2. The Bidder or Contractor has not attempted intentionally to evade the requirements of the program and it is in the best interests of the City to allow a modification or substitution; and
3. The Director also finds one of the following:
  - a. The listed MBE/WBE is non-responsive or cannot perform; or
  - b. The listed MBE/WBE has increased its previously quoted price to the bidder, proposer or contractor without a corresponding change in the scope of the work; or
  - c. The listed MBE/WBE has committed a material default or breach of its contract with the contractor; or
  - d. Requirements of the scope of work of the contract have changed and render subcontracting not feasible or not feasible at the levels required by the goals established for the contract; or
  - e. The listed MBE/WBE is unacceptable to the contracting department; or
  - f. The listed MBE/WBE thereafter had its certification revoked; or

B. A modification shall not be made unless the modification or substitution has first been requested and approved by the Director. Once a modification has been made, a Construction Contractor Employee Identification Report (HRD Form 0485.04) for the newly approved subcontractor must be submitted at least ten (10) days prior to the approved subcontractor commencing work on a City contract.

#### **X. Appeals.**

A. In conformance with the Act, appeals may be made to the City Fairness in Construction Board or Fairness in Professional Services and Goods Board on the following:

1. The grant or denial of a Request for Waiver;
2. Substitution for an MBE/WBE listed on a Contractor Utilization Plan;

3. Modification of the percentage of MBE/WBE participation on a Contractor Utilization Plan;
  4. Liquidated Damages;
  5. The amount of MBE/WBE credit the Contractor may receive for MBE/WBE participation identified in the contractor utilization plan.
- B. Any appeal must be filed in writing with the Director within fifteen (15) calendar days of notice of the determination. Mailing, faxing, personal delivery or posting at HRD of determinations shall constitute notice. The appeal shall state with specificity why the Bidder or Contractor believes the determination is incorrect
- C. Failure to file a timely appeal shall constitute a waiver of a Bidder's or Contractor's right to appeal such determination and such person shall be estopped to deny the validity of any determination which could have been timely appealed.

#### **XI. Access to Documents and Records.**

- A. By submitting a Bid, each Bidder agrees to permit the City, its duly authorized agents or employees, access at all reasonable times to all books and business records of Bidder as may be necessary to ascertain compliance with the requirements of this document and the Act, within ten (10) calendar days of the date of the written request.
- B. All Bidders agree to cooperate with the contracting department and HRD in studies and surveys regarding the MBE/WBE program.

#### **XII. Miscellaneous.**

- A. A Bidder or Contractor shall bear the burden of proof with regard to all issues on appeal.
- B. In the event of any conflict between this document and the Program, the provisions of the Program shall control. The terms used in this document are defined in the Program.
- C. Oral representations are not binding on the City.
- D. The City Council may waive the requirements of this document and the Program and award the contract to the lowest and best bidder if the City Council determines a waiver is in the best interests of the City.
- E. The Director may grant extensions of time to Bidders to submit Letters of Intent to Subcontract (HRD Form 00450.01).

#### **XIII. Liquidated Damages – MBE/WBE Program.**

- A. If Contractor fails to achieve the MBE/WBE goals stated in its Contractor Utilization Plan, as amended, the City will sustain damages, the exact extent of which would be difficult or impossible to ascertain. Therefore, in order to liquidate those damages, the monetary difference between either (1) the amount of the MBE/WBE goals set forth in the Contractor Utilization Plan, as amended, or (2) the goals established (whichever is lower) and the amount actually paid to qualified MBEs and WBEs for performing a commercially useful function will be deducted from the Contractor's payments as liquidated damages. In determining the amount actually paid to qualified MBEs and WBEs, no credit will be given for the portion of participation that was not approved by the Director, unless the Director determines that the Contractor acted in good faith. No

deduction for liquidated damages will be made when, for reasons beyond the control of the Contractor, the MBE/WBE participation stated in the Contractor Utilization Plan, as amended and approved by the Director is not met.

## **PART B. CONSTRUCTION EMPLOYMENT PROGRAM REQUIREMENTS**

**IMPORTANT:** This Part B is applicable to City construction contracts estimated by the City prior to solicitation as: (1) requiring more than 800 construction labor hours and (2) valued in excess of \$300,000.00. This program is distinguished from the M/WBE Program in that it is based on workforce hours of the Bidder and *all* its participating subcontractors rather than the actual contract value of work. The instructions herein detail the specifics related to this program. This program is in *addition* to the M/WBE program.

### **I. City's Construction Employment Program.**

- A. The City has adopted a Construction Employment Program (Sections 3-501 through 3-525, Code of Ordinances) (the "Workforce Program" or "Program") to implement the City's policy of supporting the fullest possible utilization of minority and women workers in the construction industry.
- B. The minimum workforce goals are currently set by ordinance at 10% for minorities and 2% for women. These goals are separate from M/WBE goals. Public recognition may be provided if the bidder achieves at least twice the minimum participation.
- C. Construction contracts subject to the Workforce Program and the company-wide and project-specific workforce goals ("workforce goals") are those contracts to construct, reconstruct, improve, enlarge or alter any fixed work that is estimated by the City prior to solicitation to: (1) require more than 800 construction labor hours, (2) has estimated costs that exceed \$300,000.00, and (3) involve the expenditure of public funds.
- D. The successful bidder may meet company-wide goals by counting the bidder's utilization of minorities and women throughout the Kansas City metropolitan statistical area. . In addition, the successful Bidder is responsible to ensure that it and its subcontractors cumulatively make good faith efforts to meet project-specific goals for utilization of minorities and women.
- E. These Human Relations Department ("HRD") Forms & Instructions are part of the BIDDING DOCUMENTS and CONTRACT DOCUMENTS as defined in the General Conditions. By submitting a Bid, the Bidder agrees, as a material term of the contract, to carry out the City's Construction Employment Program by making good faith efforts to utilize minority and women workers to the fullest extent consistent with submitting the lowest and best bid to the City. Bidder agrees that the Program is incorporated into this document and agrees to follow the Program. Although it is not a requirement that a Bidder in fact meet or exceed the construction employment goals to receive approval



from HRD, a Bidder not doing so is required to objectively demonstrate to HRD that good faith efforts have been made.

- F. The following HRD Forms are to be used for Construction Employment Program submittals:
1. Project Workforce Monthly Report (HRD Form 00485.02)
  2. Company-Wide Workforce Monthly Report (HRD Form 00485.03)

## II. Required Submissions.

- A. Within forty-eight (48) hours after bid opening, the construction contractor shall submit the **Construction Employee Identification Report** (HRD Form 00485.03) and shall include: the name, home address, job title, sex and race/ethnicity of each person working for the Prime. The individuals to be listed on the form are those which the construction contractor *anticipates* will be performing construction labor hours creditable towards the minimum workforce goals applicable to the construction contractor individually.

The following circumstances also require the submission of a Construction Employee Identification Report:

- a. Prior to contract execution for those City construction contracts awarded pursuant to a request for proposals (RFP), the construction contractor shall submit a **Construction Employee Identification Report** (HRD Form 00485.03).
  - b. At least ten (10) days prior to the date upon which any subcontractor is to commence work under a City construction contract, the Prime shall submit a **Construction Employee Identification Report** (HRD Form 00485.03) for the subcontractor.
- B. The HRD Director has established the B2GNow Diversity Management System (“B2GNOW”) (an online reporting tool) as the preferred method for fulfilling reporting requirements of the Workforce Program. The HRD Director will allow paper submission of the following HRD Forms in lieu of on-line submission if the on-line submission process presents a hardship to the contractor:
1. **Project-Specific Workforce Monthly Report (HRD Form 00485.02)**
  2. **Company-Wide Workforce Monthly Report (HRD Form 00485.03)**
- C. Bidder must submit the following documents through B2GNow or in paper format on a monthly basis if awarded the contract:
1. **Project Workforce Monthly Report (HRD Form 00485.02).** This report is contract specific. This report must be submitted to the Director by the 15<sup>th</sup> of each month for the Contractor and each subcontractor. It will be utilized to report the Contractor’s own workforce compliance data with regard to the City’s construction contract. Failure to submit timely reports may result in delays in processing of current and future contract approvals and payment applications.
  2. **Company-Wide Workforce Monthly Report (HRD Form 00485.03).** This report

is not contract specific; it is used to report on the utilization of women and minorities, by trade, company-wide. This report must be submitted to the Director by the 15<sup>th</sup> of each month. It will be utilized to report the Contractor's own workforce compliance data with regard to every contract (both privately and publicly funded) that the Contractor has in progress throughout the Kansas City Metropolitan Statistical Area. Failure to submit timely reports may result in delays in processing of current and future contract approvals and payment applications.

### **III. Submittal Required for Final Contract Payment.**

- A. The final Project Workforce Monthly Report(s) and Company-Wide Workforce Monthly Report must be submitted before final payment will be made and/or retainage released. Contractor shall note the submittal of the final reports by notation in the box entitled "Final Report"

### **IV. Methods for Securing Workforce Participation and Good Faith Efforts.**

- A. A bidder is required to make good faith efforts to achieve the construction employment goals and ensure its subcontractors are making good faith efforts to achieve the construction employment goals. If a Bidder or its subcontractors will be unable to secure enough minority and female participation to meet or exceed the construction employment goals, a bidder must, within a reasonable time after so learning, request a waiver or modification of the goals by the Director of HRD. The Director will request evidence of the Bidder's and its' subcontractors' good faith efforts to meet the goals. The Director will examine the Bidder's request and the Bidder's documentation of good faith efforts for itself and its subcontractors. The Director will examine the Bidder's request and the Bidder's documentation of good faith efforts and grant or deny a waiver or modification. The Director will grant a waiver or modification only if the Bidder has made good faith efforts to secure minority and female participation.

**IMPORTANT:** The Bidder's subcontractors on a city construction contract must meet the workforce goals collectively. The bidder is responsible to ensure the subcontractors make good faith efforts to meet the workforce goals. Bidders are required to include language in its subcontracts that ensure the subcontractors make good faith efforts to meet or exceed the workforce goals.

- B. In evaluating good faith efforts, the Director will consider whether the Bidder and its subcontractors have performed the following:
  1. For those bidders that are not signatories to a collective bargaining agreement with organized labor:
    - a. Requested in writing the assistance of the Director with respect to efforts to promote the utilization of minorities and women in the workforce and acted upon the Director's recommendations; and
    - b. Advertised in minority or women trade association newsletters and/or minority or women owned media at least 15 calendar days prior to the utilization of any construction services on the city construction contract and used terminology that sufficiently describes the work available, the pay scale,

- the application process, and anything else that one might reasonably be expected to be informed of relevant to the position being advertised; and
- c. Maintained copies of each advertisement and a log identifying the publication and date of publication; and
  - d. Conducted real and substantial recruitment efforts, both oral and written, targeting resident, minority and women community-based organization, schools with a significant minority student population, and training organizations serving the recruitment area; and
  - e. Established and maintained a current list of resident, minority and women recruitment sources, providing written notification to the recruitment sources of available employment opportunities, and maintained records of the notices submitted to the organizations and any responses thereto; and
  - f. Maintained a current file for the time period of the city construction contract with the name, address, and telephone number of each resident, minority and woman job applicant, the source of the referral, whether or not the person was hired, and in the event that the applicant was not hired, the reason therefore; and
  - g. Promoted the retention of minorities and women in its workforce with the goals of achieving sufficient annual hours for minorities and women to qualify for applicable benefits; and
  - h. Required by written contract that all subcontractors comply with the above efforts.
2. For those bidders that are signatories to collective bargaining agreements with organized labor:
- a. Requested in writing from each labor union representing crafts to be employed that:
    - i. the labor union make efforts to promote the utilization of residents of the City, minorities and women in the workforce; and
    - ii. the labor union identify any residents of the City, minorities and women in its membership eligible for employment; and
  - b. Collaborated with labor unions in promoting mentoring programs for journeypersons intended to assist minorities and women in increasing retention with the goals of achieving sufficient annual hours to qualify for applicable benefits; and
  - c. Maintained a current file with the name, address, and telephone number of each resident, minority and women worker identified by the labor union, whether or not the person was hired, and in the event the person was not hired, the reason therefore.
  - d. To the extent the good-faith efforts applicable to bidders that are signatories to collective bargaining agreements with organized labor conflict with the procedures implemented by the bidder in order to comply with the relevant

bargaining agreement, the bidder shall substitute other procedures as may be approved by the Director in writing, in order to accomplish the purpose and intent of this section.

- C. In the event workforce goals are not met or there is anticipation that goals will not be met, a Bidder will be required to give the City documentation to prove that it and/or its subcontractors made good faith efforts. The Bidder will be contacted by the City with further instructions about when this documentation must be submitted.

#### **V. Access to Documents and Records.**

- A. By submitting a Bid, each Bidder agrees to permit the City, its duly authorized agents or employees, access at all reasonable times to all books and business records of Bidder as may be necessary to ascertain compliance with the requirements of this document and the Program, within ten (10) days of the date of the written request. Each bidder further agrees to require, if awarded the contract, that every subcontractor permit the City the same access to documents and records.
- B. All Bidders agree to cooperate with the contracting department and HRD in studies and surveys regarding the construction employment program.

#### **VI. Appeals.**

- A. In conformance with the Program, appeals may be made to the Construction Workforce Board on the following:
  - 1. Determinations by the Director that a contractor did not meet the construction employment goals and did not make a good faith effort to meet the goals;
  - 2. Recommendations by the Director to assess liquidated damages;
  - 3. Recommendation by the Director that a contractor be declared ineligible to receive any city construction contract for a period of time up to one year.
- B. Any appeal must be filed in writing with the Director within ten (10) working days of notice of the recommendation or determination. The appeal shall state with specificity why the Bidder or Contractor believes the recommendation or determination is incorrect.
- C. Failure to file a timely appeal shall constitute a waiver of a Bidder's or Contractor's right to appeal such determination or recommendation and such person shall be estopped to deny the validity of any order, determination, recommendation or action of HRD which could have been timely appealed.

#### **VII. Miscellaneous.**

- A. A Bidder or Contractor shall bear the burden of proof with regard to all issues on appeal.
- B. The successful bidder may be required to meet with the Director of HRD or the Director's designee for the purpose of discussing the construction employment program, the bidder's efforts to realize the goals, and any other problems and/or issues affecting the realization of the goals or the program in general.
- C. In the event of any conflict between this document and the Program, the provisions of the Program shall control. The terms used in this document are defined in the Program.
- D. Oral representations are not binding on the City.

## **VIII. Failure to Meet Workforce Goals**

- A. If Contractor or its subcontractors fail to achieve the construction employment goals or make good faith efforts to achieve those goals without having previously obtained a waiver or modification of those goals, the City will sustain damages, the exact extent of which would be difficult or impossible to ascertain. These damages are magnified if the failure to abide by the requirements of the Workforce Program is recurring. Therefore, if the directory finds that the contractor or subcontractor have not met, or made good faith efforts to meet, the construction employment goals for any quarter, the director may:
1. Assess liquidated damages against the construction contractor, as specified in the city construction contract;
  2. Require the contractor to attend mandatory training, as specified in the construction contract;
  3. Declare the contractor ineligible to receive any city construction contract or participate as a subcontractor under any city construction contract for a period of time up to six months, as specified in the construction contract.

## **IX. First Source Program**

- A. The City has established a labor force recruiting program intended to assist contractors in identifying, interviewing and hiring qualified job applicants residing in Kansas City, Missouri. While the contractor awarded a City construction contract is not prohibited from hiring persons residing outside Kansas City, Missouri, the recruiting resource provided for herein (the “First Source Program”) must be utilized by the contractor subject to the construction employment goals as set forth in this **PART B, CONSTRUCTION EMPLOYMENT PROGRAM REQUIREMENTS**.
- B. The City utilizes the services of the Full Employment Council, Inc., to administer the First Source Program. The contractor shall contact the Full Employment Council within 48 hours of contract award, regardless of whether the contractor has any hiring needs at that time, and within 48 hours following any job vacancy which the contractor reasonably anticipates filling during the term of the City construction contract. The contractor shall comply with the First Source Program requirements as implemented by the Full Employment Council unless otherwise excused in writing by the Director of HRD for good cause shown. To ensure compliance with the First Source Program, the contractor shall contact those persons at the Full Employment Council responsible for administering the program, which may be identified by visiting their website at [www.feckc.org](http://www.feckc.org) and clicking on the link for KCMO First Source Hiring Program. The contractor shall not hire any individual to provide construction services on a City construction contract unless the contractor has met the requirements of the First Source Program.
- C. The contractor shall require that its subcontractors utilize the First Source Program to the same extent that the contractor is required to do so, and shall incorporate the requirements of this Section IX into every subcontract. Every subcontractor shall be required to contact the Full Employment Council within 48 hours of subcontract award, regardless of whether the subcontractor has any hiring needs at that time, and within 48 hours following any job vacancy which the subcontractor reasonably anticipates filling during the term of their subcontract on a City construction project.

## CONTRACTOR UTILIZATION PLAN/REQUEST FOR WAIVER

Project Number \_\_\_\_\_

Project Title \_\_\_\_\_

(Department Project)	Department

(Bidder/Proposer)

STATE OF \_\_\_\_\_ )

) ss

COUNTY OF \_\_\_\_\_ )

I, \_\_\_\_\_, of lawful age and upon my oath state as follows:

1. This Affidavit is made for the purpose of complying with the provisions of the MBE/WBE submittal requirements on the above project and the MBE/WBE Program and is given on behalf of the Bidder/Proposer listed below. It sets out the Bidder/Proposer's plan to utilize MBE and/or WBE contractors on the project.
  
2. The project goals are **12 % MBE** and **12 % WBE**. Bidder/Proposer assures that it will utilize a minimum of the following percentages of MBE/WBE participation in the above project:

**BIDDER/PROPOSER PARTICIPATION: \_\_\_\_\_% MBE \_\_\_\_\_% WBE**

3. The following are the M/WBE subcontractors whose utilization Bidder/Proposer warrants will meet or exceed the above-listed Bidder/Proposer Participation. Bidder/Proposer warrants that it will utilize the M/WBE subcontractors to provide the goods/services described in the applicable Letter(s) of Intent to Subcontract, copies of which shall collectively be deemed incorporated herein). *(All firms **must currently be certified by Kansas City, Missouri**)*

a. Name of M/WBE Firm \_\_\_\_\_  
 Address \_\_\_\_\_  
 Telephone No. \_\_\_\_\_  
 I.R.S. No. \_\_\_\_\_

- b. Name of M/WBE Firm \_\_\_\_\_  
 Address \_\_\_\_\_  
 Telephone No. \_\_\_\_\_  
 I.R.S. No. \_\_\_\_\_
  
- c. Name of M/WBE Firm \_\_\_\_\_  
 Address \_\_\_\_\_  
 Telephone No. \_\_\_\_\_  
 I.R.S. No. \_\_\_\_\_
  
- d. Name of M/WBE Firm \_\_\_\_\_  
 Address \_\_\_\_\_  
 Telephone No. \_\_\_\_\_  
 I.R.S. No. \_\_\_\_\_
  
- e. Name of M/WBE Firm \_\_\_\_\_  
 Address \_\_\_\_\_  
 Telephone No. \_\_\_\_\_  
 I.R.S. No. \_\_\_\_\_
  
- f. Name of M/WBE Firm \_\_\_\_\_  
 Address \_\_\_\_\_  
 Telephone No. \_\_\_\_\_  
 I.R.S. No. \_\_\_\_\_

*(List additional M/WBEs, if any, on additional page and attach to this form)*

4. The following is a breakdown of the percentage of the total contract amount that Bidder/Proposer agrees to pay to each listed M/WBE:

**MBE/WBE BREAKDOWN SHEET**

**MBE FIRMS:**

Name of MBE Firm	Supplier/Broker/Contractor	Subcontract Amount*	Weighted Value**	% of Total Contract
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____


**TOTAL MBE \$ / TOTAL MBE %:** \$ \_\_\_\_\_ %

**WBE FIRMS:**

Name of WBE Firm	Supplier/Broker/Contractor	Subcontract Amount*	Weighted Value**	% of Total Contract

**TOTAL WBE \$ / TOTAL WBE %:** \$ \_\_\_\_\_ %

\*“Subcontract Amount” refers to the dollar amount that Bidder/Proposer has agreed to pay each M/WBE subcontractor as of the date of contracting and is indicated here solely for the purpose of calculating the percentage that this sum represents in proportion to the total contract amount. Any contract amendments and/or change orders changing the total contract amount may alter the amount due an M/WBE under their subcontract for purposes of meeting or exceeding the Bidder/Proposer participation.

\*\*“Weighted Value” means the portion of the subcontract amount that will be credited towards meeting the Bidder/Proposer participation. See HRD Forms and Instructions for allowable credit and special instructions for suppliers.

- Bidder/Proposer acknowledges that the monetary amount to be paid each listed M/WBE for their work, and which is approved herein, is an amount corresponding to the percentage of the total contract amount allocable to each listed M/WBE as calculated in the MBE/WBE Breakdown Sheet. Bidder/Proposer further acknowledges that this amount may be higher than



the subcontract amount listed therein as change orders and/or amendments changing the total contract amount may correspondingly increase the amount of compensation due an M/WBE for purposes of meeting or exceeding the Bidder/Proposer participation

6. Bidder/Proposer acknowledges that it is responsible for considering the effect that any change orders and/or amendments changing the total contract amount may have on its ability to meet or exceed the Bidder/Proposer participation. Bidder/Proposer further acknowledges that it is responsible for submitting a Request for Modification or Substitution if it will be unable to meet or exceed the Bidder/Proposer participation set forth herein.
7. If Bidder/Proposer has not achieved both the M/WBE goal(s) set for this Project, Bidder/Proposer hereby requests a waiver of the MBE and/or WBE goal(s) that Bidder/Proposer has failed to achieve
8. Bidder/Proposer will present documentation of its good faith efforts, a narrative summary detailing its efforts and the reasons its efforts were unsuccessful when requested by the City.
9. I hereby certify that I am authorized to make this Affidavit on behalf of the Bidder/Proposer named below and who shall abide by the terms set forth herein:

Bidder/Proposer primary contact: \_\_\_\_\_

Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Facsimile number: \_\_\_\_\_

E-mail Address: \_\_\_\_\_

By: \_\_\_\_\_

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

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

(Attach corporate seal if applicable)

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

My Commission Expires: \_\_\_\_\_

\_\_\_\_\_  
Notary Public



# LETTER OF INTENT TO SUBCONTRACT

Check one:	
Original LOI:	<input type="checkbox"/>
Updated LOI:	<input type="checkbox"/>

Project Name/Title \_\_\_\_\_

Project Location/Number \_\_\_\_\_

**PART I:** Prime Contractor \_\_\_\_\_ agrees to enter into a contractual agreement with M/W/DBE/Section 3 Subcontractor \_\_\_\_\_ who will provide the following goods/services in connection with the above-reference contract: [Insert a brief narrative describing goods/services to be provided. Broad Categorizations (e.g., "electrical," "plumbing," etc.) or the listing of NAICS Codes in which M/W/DBE Subcontractor is certified are insufficient and may result in denial of this Letter of Intent to Subcontract.]

for an estimated amount of \$ \_\_\_\_\_ (or \_\_\_\_\_% of the total estimated contract value.)

- M/WBE Vendor type:
- Subcontractor/manufacturer (counts as 100% of contract value towards goals)
  - Supplier (counts as 60% of the total dollar amount paid or to be paid by a prime contractor for supplies or goods towards goals)
  - Broker (counts as 10% of the total dollar amount paid or to be paid by a prime contractor for supplies or goods towards goals)

M/W/DBE/Section 3 Subcontractor is, to the best of Prime Contractor's knowledge, currently certified with the City of Kansas City's Human Relations Department to perform in the capacities indicated herein. Prime Contractor agrees to utilize M/W/DBE Subcontractor in the capacities indicated herein, and M/W/DBE Subcontractor agrees to work on the above-referenced contract in the capacities indicated herein, contingent upon award of the contract to Prime Contractor.

**PART 2:** This section is to be completed by the M/W/DBE subcontractor listed above. Please attach additional sheets as needed for more than one intended sub-tier contract. **IMPORTANT: Falsification of this document will result in denial and other remedies available under City Code.**

- Select one:
- The M/W/DBE Subcontractor listed above **IS NOT** subcontracting any portions of the above-stated scope of work(s). (Continue to Part 3.)
  - The M/W/DBE Subcontractor listed above **IS** subcontracting certain portions of the above stated scope of work(s) to:

(1) Company name: \_\_\_\_\_

Full address: \_\_\_\_\_  
Street number and name City, State and Zip Code

Primary contact: \_\_\_\_\_  
Name Phone

a) This subcontractor is (circle one):    MBE    WBE    DBE    N/A

i: If this subcontractor is an M/W/DBE certified with the City of Kansas City, Missouri, a separate Letter of Intent must be attached to this document.

ii. If this subcontractor is NOT a certified M/W/DBE certified with the City of Kansas City, Missouri, the firm must still be listed for reporting purposes but a Letter of Intent is not required.

b) Scope of work to be performed: \_\_\_\_\_

c) The dollar value of this agreement is: \_\_\_\_\_







# REQUEST FOR MODIFICATION OR SUBSTITUTION

(This Form **must** be submitted to HRD to request substitutions for an MBE/WBE listed in the Contractor Utilization Plan or for modification of the amount of MBE/WBE participation listed in the Contractor Utilization Plan. This Form shall be an amendment to the Contractor Utilization Plan.)

**BIDDER/PROPOSER/CONTRACTOR:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

**PROJECT NUMBER OR TITLE:** \_\_\_\_\_

**AMENDMENT/CHANGE ORDER NO: (if applicable)** \_\_\_\_\_

<b>Project Goals:</b>	_____ % MBE	_____ % WBE
<b>Contractor Utilization Plan:</b>	_____ % MBE	_____ % WBE

1. I am the duly authorized representative of the above Bidder/Contractor/Proposer and am authorized to request this substitution or modification on behalf of the Bidder/Contractor/Proposer.

2. I hereby request that the Director of HRD recommend or approve: (check appropriate space(s))

a. \_\_\_\_\_ A substitution of the certified MBE/WBE firm \_\_\_\_\_,  
*(Name of new firm)*  
 to perform \_\_\_\_\_,  
*(Scope of work to be performed by new firm)*

for the MBE/WBE firm \_\_\_\_\_ which is currently  
*(Name of old firm)*  
 listed on the Bidder's/Contractor's/Proposer's Contractor Utilization Plan to  
 perform the following scope of work: \_\_\_\_\_.  
*(Scope of work of old firm)*

b. \_\_\_\_\_ A modification of the amount of MBE/WBE participation currently listed on the Bidder's/Contractor's/Proposer's Contractor Utilization Plan from  
 \_\_\_\_\_ % MBE \_\_\_\_\_ % WBE *(Fill in % of MBE/WBE Participation currently listed on Contractor Utilization Plan)*

**TO**

\_\_\_\_\_ % MBE \_\_\_\_\_ % WBE *(Fill in New % of MBE/WBE Participation requested for Contractor Utilization Plan)*

- c. Attach 00450.01 Letter of Intent to Subcontract letter for each new MBE/WBE to be added.
- d. Attach a copy of the most recent 00485.01 or on-line M/WBE Monthly Utilization Report

3. Bidder/Contractor/Proposer states that a substitution or modification is necessary because: (check applicable reason(s) )

- \_\_\_ The MBE/WBE listed on the Contractor Utilization Plan is non-responsive or cannot perform.
- \_\_\_ The MBE/WBE listed on the Contractor Utilization Plan has increased its previously quoted price without a corresponding change in the scope of work.
- \_\_\_ The MBE/WBE listed on the Contractor Utilization Plan has committed a material default or breach of its contract.
- \_\_\_ Requirements of the scope of work of the contract have changed and make subcontracting not feasible or not feasible at the levels required by the goals established for the contract.
- \_\_\_ The MBE/WBE listed on the Contractor Utilization Plan is unacceptable to the City contracting department.
- \_\_\_ Bidder/Contractor/Proposer has not attempted intentionally to evade the requirements of the Act and it is in the best interests of the City to allow a modification or substitution.

4. The following is a narrative summary of the Bidder's/Contractor's/Proposer's good faith efforts exhausted in attempts to substitute the MBE/WBE firm named above which is currently listed on the Contractor Utilization Plan with other qualified, certified MBE/WBE firms for the listed scope of work or any other scope of work in the project:

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5. Bidder/Proposer/Contractor will present documentation when requested by the City to evidence its good faith efforts.

Dated: \_\_\_\_\_

\_\_\_\_\_  
(Bidder/Proposer/Contractor)

By: \_\_\_\_\_  
(Authorized Representative)

# HRD MONTHLY REPORTING INSTRUCTIONS

## M/WBE Monthly Utilization Report Instructions

1. MBE/WBE Reporting applies to Contracts that have approved MBE/WBE goals assigned.
2. The City will utilize a web based MBE/WBE Reporting System in the administration of this Contract. This web based application database is a collaboration tool selected and provided by City, which will allow Contractors and Consultants/Subcontractors and Subconsultants to enter data and report on compliance.

## Prevailing Wage Certified Payroll Report Instructions

1. Prevailing Wage Certified Payroll Report applies to Contracts that include Prevailing Wage or Davis Bacon Provisions.
2. This web based application database is provided by City for reporting certified payrolls and other related prevailing wage data.
3. Computer Requirements: Minimum Intel Pentium® 4 Processor 2.4 GHz or equivalent processor with 512MB of RAM; recommended Centrino Duo® Processors 1.6 GHz or equivalent with 2GB of RAM, or higher.
  - a. Computer Operation System: Windows XP, Windows Vista, or Windows 7
  - b. Web Browser: Google Chrome
  - c. Connection Speed/Minimum Bandwidth: DSL, ADSL or T1 Line for transferring a minimum of 3 Mbps Downstream and 512 Kbps Upstream
4. City will assist Contractor in providing training of personnel and Subcontractor's personnel.
5. Contractor and Subcontractors shall have the responsibility for visiting the web site and entering data in on timely basis, and as necessary to be in compliance with Prevailing Wage Requirements included in their contracts.

## Workforce Monthly Report Instructions

1. Workforce Monthly Reporting only applies to Construction Contracts greater than \$300,000 and greater than 800 projected labor hours.
2. The City will utilize a web based Reporting System in the administration of this Contract. This web based application database is a collaboration tool selected and provided by City, which will allow Contractors and Subcontractors to enter data and report on Workforce compliance.





## M/WBE Monthly Utilization Report Instructions

1. Report Date: Insert the date the report was completed.
2. Project Name: Insert the name of the project for which the report is submitted.
3. City Project Number: Insert the Project Number assigned by the City.
4. Project Address: Insert the Project street address or location.
5. Contract Award Date: Insert the date the Contract was awarded.
6. City Vender ID: Insert the General Contractor's City Vender ID Number.
7. General Contractor: Insert the name of the General Contractor.
8. City Contract Number: Insert the City Contract Number.
9. Contact Person/Phone: Insert the name and phone number of the General Contractor's Contact person for the project.
10. General Contract Amount: Insert the Contract amount for the project, including all change orders or amendments.
11. Total Amount Paid by City to Date: Insert the total amount paid by the City to the General Contractor as of the end of the reporting period.
12. General Contractor Address: Insert the General Contractor's address.
13. Contract Goals: Insert the DBE, MBE, and WBE goals specified in the Contract.
14. Total Contract Days: Insert the total Contract days for this project.
15. Completion Date: Insert the scheduled maturity/completion date, including all change orders or amendments.
16. M/W/DBE Subcontractor: Insert the name of the M/W/DBE subcontractor.
17. M/W/DBE Date of Certification: Insert the date of certification of the M/W/DBE subcontractor.
18. M/W/DBE Date of Subcontract: Insert the date of the M/W/DBE subcontract.
19. M/W/DBE % of Total Contract: Insert the percentage of M/W/DBE Contract divided by General Contract amount.
20. M/W/DBE Estimated Start date: Insert the estimated start date of M/W/DBE subcontractor.
21. M/W/DBE Amount Paid This Period: Insert the dollar amount paid this period to the M/W/DBE subcontractor by the General Contractor.
22. M/W/DBE Amount Paid To Date: Insert the cumulative dollar amount paid to the M/W/DBE subcontractor by the General Contractor.
23. M/W/DBE % of Contract Paid to Date: Insert the percentage of the M/W/DBE Amount Paid to Date divided by the General Contractor's "Total Amount Paid By City to date"

Note #1: Complete one M/WBE report per project. Do not list more than one project on one report.

Note #2: If the Contract number and project number are the same, then list the number once.

Note#3: GC stands for General Contractor.

# Project Specific Monthly Report

Human Relations Department - City of Kansas City Missouri

Report Date:	Reporting Period:	Project Description:	
Project Name:	Contractor:	Contract Awarded Date:	
City Project Number:	Contractor Address:	City Contract Number:	
Project Address:		City Vendor ID:	
	Contact Person/Phone:	Contractor Report <input type="checkbox"/>	Subcontractor Report <input type="checkbox"/>
E-mail Address:		Final Cumulative Report:	<input type="checkbox"/> Yes <input type="checkbox"/> No

Report the total monthly hours of work performed by all workers on the City Construction Contract. Enter the total hours on all lines and in all columns. Reported workforce hours should be based on payroll records.

JOB CATEGORIES	OVERALL TOTAL (Sum of all Columns, A thru F Male & Female)	A Total Hours White Employees		B Total Hours Black Employees		C Total Hours Hispanic Employees		D Total Hours Asian/Pacific Islander		E Total Hours Native American Employee		F Total Hours Other/Unknown Race Employee		G KCMO Resident Hours
		M	F	M	F	M	F	M	F	M	F	M	F	Total #
		Foreman/Supervisor												
Asbestos Worker Journeyman														
Asbestos Worker Apprentice														
Boilermaker Journeyman														
Boilermaker Apprentice														
Bricklayer Journeyman														
Bricklayer Apprentice														
Carpenter Journeyman														
Carpenter Apprentice														
Cement Mason Journeyman														
Cement Mason Apprentice														
Electrician Journeyman														
Electrician Apprentice														
Elevator Constructor Journeyman														
Elevator Constructor Apprentice														
Glazier Journeyman														
Glazier Apprentice														
Iron Worker Journeyman														
Iron Worker Apprentice														
Laborer Journeyman														
Laborer Apprentice														
Operating Engineer Journeyman														
Operating Engineer Apprentice														
Painter Journeyman														
Painter Apprentice														
Pipe Fitter/Plumber Journeyman														
Pipe Fitter/Plumber Apprentice														
Plasterer Journeyman														
Plasterer Apprentice														
Roofer Journeyman														
Roofer Apprentice														
Sheet Metal Journeyman														
Sheet Metal Apprentice														
Sprinkler Fitter														
Sprinkler Fitter Apprentice														
Truck Driver Journeyman														
Truck Driver Apprentice														
Welder Journeyman														
Welder Apprentice														
Other														
Monthly Total Hours														-
Total % of Monthly Hrs.														

Contractor shall submit report by the 15th of each month.		Report Submitted By:
Phillip Yelder, Director Human Relations Department		
414 E. 12th Street, 4th Floor	Kansas City, MO 64106	
Phone: 816-513-1836	Email: <a href="mailto:HRDcontractcompliance@kcmo.org">HRDcontractcompliance@kcmo.org</a>	Date:

Workforce Monthly Report Forms only apply to Construction Contracts greater than \$324,000.01 with greater than 800 projected labor hours.

## Workforce Monthly Report Instructions

(Instructions for Forms: 00485.02 Project Workforce Monthly Report 020408 and 00485.03 Company Wide Workforce Monthly Report 020408)

1. Report Date: Insert the date the report was completed.
2. Reporting Period: Insert the reporting month for hours performed.
3. Project Description: Insert the description/type of the project.
4. Project Name: Insert the name of the project for which the report is submitted.
5. Contractor: Insert the name of the Contractor.
6. Contract Award Date: Insert the date the Contract was awarded.
7. City Project Number: Insert the Project number assigned by the City.
8. Contractor Address: Insert the Contractor's address.
9. City Contract Number: Insert the City contract number.
10. City Vendor ID: Insert the General Contractor's City Vendor ID number.
11. Project Address: Insert the project street address or location.
12. Contact Person/Phone: Insert the name and phone number of the Contractor's contact person for the project.
13. Contractor Report / Subcontractor Report: Please check the box to indicate whether this is the contractor's report or subcontractors' summary report.
14. Email Address: Insert the contact person's email address.
15. Final Cumulative Report/Request for Retainage: Click box to mark whether report is final.
16. Job Categories: Select the appropriate Job Category for the worker.
17. Overall Total:\* Insert the total number of labor hours per trade (do not include resident hours in this total).
18. Monthly Total Hours:\* Insert the sum of all columns, A through G, male, female and residents for the month.
19. Total Percentages of Monthly Hours:\* Insert the total percentages of hours by race, gender and Kansas City, Mo resident for the month.
20. Cumulative Total Hours: Insert the total number of hours in each category plus the previous months' cumulative total hours through the duration of the project.
21. Total Percent of Cumulative Hours:\* Insert the total percent of hours worked for the project as a whole in each category.

### Notes

**Note #1:** Complete two Monthly Project Reports per project. Do not list more than one project on one report.

- a) One Workforce Monthly Project Report should list all data for the Contractor.
- b) A separate Monthly Project Report should list all data consolidated for the subcontractors on the project.

**Note #2:** Contractors are required to submit four workforce forms required per month - (see instructions for Company-Wide Report for additional 2 forms:

- a.) Contractors Monthly *Project* Report (Form No.: 00485.02);
- b.) Subcontractors' Monthly *Project* Report (Form No.: 00485.02);
- c.) Contractor's Monthly *Company Wide* Workforce Report (Form No.: 00485.03); and
- d.) Subcontractors' Monthly *Company Wide* Workforce Report (Form No.: 00485.03).

**Note #3:** The last Workforce Monthly Project Reports and Workforce Monthly Company-Wide Reports will also serve as the final report. The "Yes" box should be checked in the Final Cumulative Report cell.

\* Self Calculating Cell

# Company-Wide Workforce Monthly Report

Human Relations Department - City of Kansas City, Missouri

Report Date:	Reporting Period:	Contract Awarded Date:	
Contractor:		City Vendor ID:	
Contact Person/Phone:	Contractor Address:	Contractor Report <input type="checkbox"/>	Subcontractor Report <input type="checkbox"/>
E-mail Address:	Have you hired any new construction workers this month?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Final Cumulative Report: <input type="checkbox"/> Yes <input type="checkbox"/> No

Report total of all hours of work performed company-wide on all projects in the KCMO Metropolitan Statistical Area (MSA). Enter the total hours on all lines and in all columns. Workforce hours should be based on payroll records.

JOB CATEGORIES	OVERALL TOTAL (Sum of all Columns, A thru F Male & Female)	A Total Hours White Employees		B Total Hours Black Employees		C Total Hours Hispanic Employees		D Total Hours Asian/Pacific Islander		E Total Hours Native American Employee		F Total Hours Other/Unknown Race Employee		G KCMO Resident Hours  Total #
		M	F	M	F	M	F	M	F	M	F	M	F	
Foreman/Supervisor														
Asbestos Worker Journeyman														
Asbestos Worker Apprentice														
Boilermaker Journeyman														
Boilermaker Apprentice														
Bricklayer Journeyman														
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Iron Worker Apprentice														
Laborer Journeyman														
Laborer Apprentice														
Operating Engineer Journeyman														
Operating Engineer Apprentice														
Painter Journeyman														
Painter Apprentice														
Pipe Fitter/Plumber Journeyman														
Pipe Fitter/Plumber Apprentice														
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Plasterer Apprentice														
Roofer Journeyman														
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Sheet Metal Journeyman														
Sheet Metal Apprentice														
Sprinkler Fitter														
Sprinkler Fitter Apprentice														
Truck Driver Journeyman														
Truck Driver Apprentice														
Welder Journeyman														
Welder Apprentice														
Other														
Total Monthly Hours														
Total % of Hours														

Contractor shall submit report by the 15th of each month.													
Philip Yelder, Director Human Relations Department 414 E. 12th Street, 4th Floor, Kansas City, MO 64106 Phone: 816-513-1836 Email: <a href="mailto:HRDcontractcompliance@kcmo.org">HRDcontractcompliance@kcmo.org</a>										Report Submitted By: _____			
										Date: _____			

**City of Kansas City, Missouri  
Human Relations Department  
Construction Contractor Employee Identification Report**

Company Name: \_\_\_\_\_

Prime's Name: \_\_\_\_\_

Company Address: \_\_\_\_\_

KCMO Project Name: \_\_\_\_\_

Company City, State, Zip: \_\_\_\_\_

KCMO Project Number: \_\_\_\_\_

Name of Person Completing Report: \_\_\_\_\_

Today's Date: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Email: \_\_\_\_\_

City Department: \_\_\_\_\_

**Instructions:**

- 1) Each applicable Prime Contractors **must complete this form for its company within 48 hours of bid opening**
- 2) The Human Relations Department strongly recommends usage of the electronic version of this form. This form may be obtained by visiting [www.kcmo.gov](http://www.kcmo.gov) website. The website is enabled with a "search" function on the Home page in the center titled "What are you looking for?". Type in the "What are you looking for?" field *Contract Central*. Click on the link to *Standard City Contract Forms*. Scroll down to *Construction Contractor Employee Identification Report* and click the link to open this document. Complete the fields in the Employee section; the *Official Use Only* section will automatically populate. **NOTE: This form can be printed and attached to other required Bid documents.**
- 3) All subcontractors shall be required to complete this form and submit to the Prime Contractor. For each subcontractor, the Prime must submit this form to City at least at least (10) days prior to the date the subcontractor shall commence work under a city construction contract.
- 4) Complete this form if you are the Prime contractor on a City construction project estimated over **\$300,000 & over 800 man hours**.
- 5) Complete this form with data from your **current construction workforce** (no office personnel).
- 6) Prime contractor is responsible to ensure subcontractor completes this form as required in #3 above.

*Official Use Only*

Females		Males		Foreman/Supervisor		Operating Engineer	
KCMO Resident		KCMO Resident		Journeyman	Apprentice	Journeyman	Apprentice
African American	0 / 0	African American	##### / 0	Asbestos Worker	0 / --	Painter	0 / 0
Asian/Pacific Islander American	0 / 0	Asian/Pacific Islander American	##### / 0	Boilermaker	0 / 0	Pipe Fitter/Plumber	0 / 0
Caucasian American	0 / 0	Caucasian American	##### / 0	Bricklayer	0 / 0	Plasterer	0 / 0
Hispanic/Latino American	0 / 0	Hispanic/Latino American	##### / 0	Carpenter	0 / 0	Roofer	0 / 0
Native American	0 / 0	Native American	##### / 0	Cement Mason	0 / 0	Sheet Metal	0 / 0
Other	0 / 0	Other	##### / 0	Electrician	0 / 0	Sprinkler Fitter	0 / 0
	0 / 0		##### / 0	Elevator Constructor	0 / 0	Truck Driver	0 / 0
		Number of KCMO Residents	0	Glazier	0 / 0	Welder	0 / 0
		Number of Journeyman	0	Iron Worker	0 / 0	Other	0 / --
		Number of Apprentice	0	Laborer	0 / 0		0 / 0
					0 / 0		

Company Name: 0

KCMO Project Name: 0

KCMO Project Number: 0

	Name		Job Title (use drop down menu)	Address	City	State	Zip Code	KCMO Resident	Gender	Ethnicity
	Last	First								
1										
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4										
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15										
16										

Company Name: 0

KCMO Project Name: 0

KCMO Project Number: 0

	Name		Job Title <i>(use drop down menu )</i>	Address	City	State	Zip Code	KCMO Resident	Gender	Ethnicity
	Last	First								
17										
18										
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Company Name: 0

KCMO Project Name: 0

KCMO Project Number: 0

	Name		Job Title <i>(use drop down menu )</i>	Address	City	State	Zip Code	KCMO Resident	Gender	Ethnicity
	Last	First								
52										
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# AFFIDAVIT OF TRAINING PROGRAM

*This form must be submitted with 48 hours of Bid Opening*

Bidder \_\_\_\_\_

Project Title and Number \_\_\_\_\_

STATE OF MISSOURI )

) ss:

COUNTY OF \_\_\_\_\_ )

After being duly sworn the person whose name and signature appears below hereby states under penalty of perjury that:

1. I am the duly authorized officer of the business indicated above ("Bidder") and I make this affidavit on behalf of Bidder.
2. Bidder certifies that it presently participates in a training program that facilitates entry into the construction industry and which may include an on-the-job or in-house training program, further described as follows:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ (attach additional pages, if necessary)

3. If requested by the City, Bidder agrees to provide City further documentation of, or other information about, this training program within 48 hours of the request.
4. Bidder acknowledges that failure to submit this form to the City within 48 hours of the Bid Opening will automatically render its bid non-responsive.

I am authorized to make this Affidavit on behalf of the Bidder named below as:

\_\_\_\_\_ of \_\_\_\_\_  
(Title) (Name of Bidder)

Dated: \_\_\_\_\_ By: \_\_\_\_\_  
(Affiant)

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

My Commission Expires: \_\_\_\_\_  
Notary Public





## Pre Contract Bidder's Certification

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

STATE OF \_\_\_\_\_ )  
 ) SS  
COUNTY OF \_\_\_\_\_ )

Before me, the undersigned authority, personally appeared, who, being by me duly sworn deposed as follows:

I am authorized to make this affidavit on behalf of the named Bidder. I am of sound mind, capable of making this affidavit, and personally acquainted with the facts herein stated:

A. Bidder is current on payment of its Federal and State Income tax withholding and unemployment insurance payments, either in Missouri for companies doing business in Missouri, or in the state in which Bidder has its principal office; and

B. Bidder declares one of the following, regarding all work performed two (2) years immediately preceding the date of the Bid (check one):

Contract by contract listing of all of Bidder's written notices of violations of any Federal or State prevailing wage statute in which prevailing wage penalties were assessed against the Bidder or paid by the Bidder (Complete and attach additional sheets if necessary):

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

There have been no written notices of violations of any Federal or State prevailing wage statute in which prevailing wage penalties were assessed against the Bidder or paid by the Bidder.

C. Bidder is currently in good standing with the Missouri Secretary of State or Bidder has filed a Registration of Fictitious Name with the Missouri Secretary of State.

\_\_\_\_\_  
(Bidder's Name)

(Date)

Signature of Person Making This Affidavit

In witness whereof, I have hereunto subscribed my name and affixed my official seal this \_\_\_ day of \_\_\_\_\_, 20\_\_.

# Contract for Design-Build Services

This **CONTRACT FOR DESIGN-BUILD SERVICES** ("Contract") is made by and among Kansas City, Missouri, a constitutionally chartered municipal corporation ("City" or "Owner"), \_\_\_\_\_ ("Design-Builder") as principal, and \_\_\_\_\_ ("Surety") as surety, for design and construction services in connection with the **Project No. 81000976 – Project Title: 60-Inch Force Main Repairs at the Blue River Wastewater Treatment Plant.**

## Article 1 Scope of Work

**1.1** Design-Builder shall perform all design and construction services, and provide all materials, equipment, tools, supervision, labor, and all other items and services necessary to complete the Work described in and reasonably inferable from the Contract Documents as defined in the Contract General Conditions..

## Article 2 Ownership of Deliverables and Other Intellectual Property

### **2.1 City's Ownership of Deliverables.**

**2.1.1** Design-Builder and City agree that all original documents, including, without limitation, plans, drawings, specifications, reports, maps, models, renderings, and other copyrightable work, including electronic media, prepared or obtained by Design-Builder under the terms of this Contract ("Deliverables") are works made for hire. It is agreed that such Deliverables are the exclusive property of City, and City shall own the copyright and other intellectual property rights in them. Design-Builder hereby assigns to City all of Design-Builder's rights in such works, and agrees to cooperate with City in preparing and filing any copyright registration applications associated with such Deliverables.

**2.1.2** Design-Builder's basic survey notes, diaries, sketches, charts, computations, and other data shall be made available to City upon request (whether such request is made during the term of this Contract or after its completion or earlier termination) with no restriction or limitation on their use by City.

### **2.2 City's Use, Re-Use, or Modification of Deliverables.**

**2.2.1** No legal limitation shall be imposed upon City in its subsequent use of the Deliverables, or any ideas developed in or as a result of the Deliverables, whether such use involve City's occupancy, operation, and maintenance of the Project or otherwise.

**2.2.2** In the event any of the Deliverables are re-used or modified by or on behalf of City, the name plates or other identification of Design-Builder shall be removed from the Deliverables.

**2.2.3** In the event any of the Deliverables are re-used or modified by or on behalf of City, City shall release Design-Builder and those who worked on the Project by or through Design-Builder,

including the DOR, Lead Architect, and Design Subconsultants of any tier (collectively the "Released Parties"), from liability or legal exposure arising out of or resulting from such re-use or modification.

**2.3 Design-Builder's Limited License Upon Performance in Full.** Upon Design-Builder's full and proper performance of all obligations imposed by the Contract Documents, City shall be automatically deemed to have granted to Design-Builder a limited, non-exclusive, perpetual, royalty-free license to copy, distribute, and use any of the Deliverables on other projects; provided, however, that Design-Builder may not use the Deliverables to substantially duplicate the Project or any of its significant parts or aspects in any other application or for any other client; and provided further, however, that Design-Builder shall defend, indemnify, and hold harmless City and its Consultants in accordance with the provisions of Article 6 of the General Conditions of Contract from and against liability or legal exposure arising out of or resulting from such copying, distribution or use of any of the Deliverables.

**2.4 Rights in Deliverables Upon City's Termination of Design-Builder for Convenience.** If City terminates this Contract for its convenience as set forth in Article 14 of the General Conditions of Contract, then upon City's payment to Design-Builder of those amounts due for Work properly performed to date of termination in accordance with the Contract Documents, City may use the Deliverables in the completion of the Project through its employees, agents, or third parties; City may use the Deliverables in and for City's subsequent use, occupancy, operation, and maintenance of the Project; and/or City may re-use or modify the Deliverables in accordance with the terms set forth in Section 2.2 above, without further obligation or liability to Design-Builder; provided, however, that and Design-Builder shall be automatically deemed to have been granted by City a limited, non-exclusive, perpetual, royalty-free license to copy, distribute, and use the Deliverables on other projects in accordance with the terms set forth in Section 2.3 above.

**2.5 Rights in Deliverables Upon City's Termination of Design-Builder for Default.** If City terminates this Contract due to Design-Builder's default pursuant to Article 14 of the General Conditions of Contract, then upon City's payment to Design-Builder of those amounts due for Work properly performed to date of termination in accordance with the Contract Documents, City may use the Deliverables in the completion of the Project through its employees, agents, or third parties; City may use the Deliverables in and for City's subsequent use, occupancy, operation, and maintenance of the Project; and/or City may re-use or modify the Deliverables in accordance with the terms set forth in Section 2.2 above, without further obligation or liability to Design-Builder.

**2.6 City's Rights in Other Intellectual Property.** Design-Builder shall on its own behalf and on behalf of its employees and agents promptly communicate and disclose to City all computer programs, documentation, software, and other copyrightable works, and all discoveries, improvements, and inventions conceived, reduced to practice, or made by Design-Builder or its employees or agents, whether solely or jointly with others, during the term of this Contract resulting from or related to any Work that may be performed by Design-Builder or its employees agents. Design-Builder and City agree that all such inventions and copyrightable works are works made for hire and shall be and remain entirely the property of City. Design-Builder hereby assigns to City any rights that Design-Builder may have in such copyrightable or patentable works, and agrees to cooperate with City in registering any copyrights or obtaining any patents on same.

**Article 3**  
**Contract Time**

**3.1 General.**

**3.1.1** The Contract Time(s) shall commence to run on the date indicated in the applicable Notice to Proceed.

**3.1.2** Design-Builder shall start to perform the Work on the date(s) when the Contract Time(s) commence to run, but no Work or services shall be performed prior to the date indicated in the applicable Notice to Proceed unless otherwise indicated in the Notice to Proceed. **Further, the professional liability (errors & omissions) insurance provided by Design-Builder under the Contract shall include a retroactive date earlier than the date on which Design-Builder began performing any design services associated with the Project, including, without limitation, the date of submission of Design-Builder's SOQ for this Project.**

**3.2 Detailed Design Services.**

**3.2.1** The parties shall meet as contemplated by the General Conditions of Contract to discuss and implement procedures relating to City's review of Design-Builder's interim design submissions and Construction Documents.

**3.2.2** Following such meeting and upon City's satisfaction with the procedures implemented and the information provided by Design-Builder, City shall issue the Design Notice to Proceed, releasing Design-Builder to proceed with the detailed design services for the Work as of the date indicated in the notice.

**3.5 Time is of the Essence.** City and Design-Builder mutually agree that time is of the essence with respect to the Contract, and that all dates and times set forth in the Contract Documents are material.

**Article 4**  
**Contract Price**

**4.1 Contract Price**

**4.1.1** In return for satisfaction of all of Design-Builder's obligations under the Contract Documents, including, without limitation, the furnishing of and payment for the Work, all materials, labor of all laborers, Subcontractors, Sub-Subcontractors, teamsters, truck drivers, teams and wagons employed, and owners of equipment used on the Work, City shall pay Design-Builder, in accordance with Article 13 of the General Conditions of Contract, the firm fixed price of \_\_\_\_\_ (\$\_\_\_\_\_) ("Contract Price"). The Contract Price shall not be modified except by fully-executed Change Order.

**4.1.2** The Contract Price shall be allocated for services as follows and shall be payable for proper performance of services as follows:

**4.1.2.1** \_\_\_\_\_ Dollars (\$\_\_\_\_\_) for design services (the "Design Contract Price")

**4.1.2.2** \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) for construction services (the "Construction Contract Price").

4.1.2.3 \_\_\_\_\_ Dollars (\$\_\_\_\_\_)for services under Allowances.

4.1.3 The following materials and equipment are specified in the Contract Documents by allowances. In some cases, these allowances include installation. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation.

4.1.3.1 Allowances:

4.1.3.2 At the earliest practical date after award of the Contract, advise City of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

4.1.3.3 Funds will be drawn from the allowance by issuance of document 01210.01 Allowance Authorization.

4.1.3.4 If necessary, additional requirements will be issued by Change Order.

4.1.3.5 At Project closeout, unused amounts remaining in the allowance will be credited to the Owner by Change Order.

## Article 5 Other Provisions

### 5.2 Required Authorizations

5.2.1 This Contract is entered into by City subject to authorization by the City Council or the City Manager, or by the Board of Parks and Recreation Commissioners, and shall not be binding until so authorized, and is subject to the federal and state laws and the provisions of the Kansas City Charter and Ordinances in general that may affect same.

### 5.3 Financial Representations

5.3.1 In executing this Contract, Design-Builder and Surety each individually represents that it has the necessary financial resources to fulfill its obligations under this Contract, and each has the necessary corporate approvals to execute this Contract.

**IN WITNESS WHEREOF**, the authorized representatives of City, Design-Builder, and Surety have hereunto set their hands and seals respectively, in execution of this Contract.

### **DESIGN-BUILDER**

\_\_\_\_\_  
Legal Name of Design-Builder

\_\_\_\_\_  
Street Address

\_\_\_\_\_  
City, State, Zip Code

\_\_\_\_\_  
E-mail Address

\_\_\_\_\_  
Facsimile Number

I hereby certify that I have authority to execute  
this document on behalf of Design-Builder.

By: \_\_\_\_\_

Typed or Printed Name: \_\_\_\_\_

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

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

(Affix corporate seal if applicable)

**SURETY**

\_\_\_\_\_  
Legal Name of Surety

\_\_\_\_\_  
Street Address

\_\_\_\_\_  
City, State, Zip Code

\_\_\_\_\_  
Facsimile Number

I hereby certify that I have authority to execute this document on  
behalf of Surety.

By: \_\_\_\_\_

Typed or Printed Name: \_\_\_\_\_

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

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

(Affix corporate seal and attach original Power of Attorney)

**KANSAS CITY, MISSOURI**

\_\_\_\_\_  
Name of City Department

\_\_\_\_\_  
Street Address

\_\_\_\_\_  
City, State, Zip Code

\_\_\_\_\_  
Facsimile Number

By: \_\_\_\_\_

Typed or Printed Name: \_\_\_\_\_

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

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

Approved as to form:

\_\_\_\_\_  
Assistant City Attorney (Date)

I hereby certify that there is a balance, otherwise unencumbered, to the credit of the appropriation to which the foregoing expenditure is to be charged, and a cash balance, otherwise unencumbered, in the treasury, to the credit of the fund from which payment is to be made, each sufficient to meet the obligation hereby incurred.

\_\_\_\_\_  
Director of Finance (Date)



## CONTRACT REQUIRED SUBMISSIONS

Project/Contract Number **81000976/1643**

Project/Contract Title/Description **60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant**

These instructions are to assist Contractor in providing all necessary documents to enter into a contract with the City.

### **MISSOURI SECRETARY OF STATE BUSINESS ENTITY REGISTRATION**

- For a corporation, current Certificate of Good Standing from the Missouri Secretary of State ((816) 889-2925 or (816) 889-2926 or a web site print-out, dated no more than ninety (90) days before the date furnished to the City – One Copy.
- For a business that is not a corporation and not doing business in the exact name of the proprietor, a copy from the Secretary of State, ((816) 889-2925 or (816) 889-2926 of the filed Registration of Fictitious Name dated no more than ninety (90) days before the date furnished to the City – One Copy.

### **EMPLOYEE ELIGIBILITY VERIFICATION AFFIDAVIT** [Required if the contract exceeds \$5,000.00]

- 00515.01 Employee Eligibility Verification Affidavit – One Executed Affidavit
- First and last pages of the E-Verify Program Memorandum of Understanding that your company has received from the U.S. Department of Homeland Security verifying enrollment in the program. For assistance, contact E-Verify Operations at 888-464-4218 – One Copy.

### **SUBCONTRACTORS LISTING** [Applicable form provided]

- Non-Construction Subcontractors List – One Copy
- 01290.09 Subcontractors & Major Material Suppliers List – One Copy

### **PAYMENT BONDS (If applicable)**

- Each copy of the Payment bond must be signed and properly dated by the following, as applicable:

**Corporation** - A corporate officer authorized to sign on behalf of the corporation and the signature must be attested by a witness to the signature; OR

**Limited Liability Company** - A member of the limited liability company authorized to sign on behalf of the company and a witness to the signature must attest the signature; OR

**Partnership** - A partner authorized to sign on behalf of the partnership and the signature must be attested by a witness to the signature; OR

**Sole Proprietor** - By the proprietor and the signature must be attested by a witness to the signature; OR

**Joint Venture** - The parties to the Joint Venture authorized to sign on behalf of each party to the Joint Venture, or a person authorized by each party to the Joint Venture to sign on behalf of all parties to the Joint Venture; AND

**Surety** - A person authorized by the Surety to sign on behalf of the Surety. A power of attorney issued by the Surety Company authorizing its representative to sign the Agreement must be attached to the Agreement and each copy.



**PERFORMANCE AND MAINTENANCE BOND (If applicable)**

- As applicable, each copy of the Performance and Maintenance bond must be signed and properly dated by:

**Corporation** - A corporate officer authorized to sign on behalf of the corporation and the signature must be attested by a witness to the signature; OR

**Limited Liability Company** - A member of the limited liability company authorized to sign on behalf of the company and a witness to the signature must attest the signature; OR

**Partnership** - A partner authorized to sign on behalf of the partnership and the signature must be attested by a witness to the signature; OR

**Sole Proprietor** - By the proprietor and the signature must be attested by a witness to the signature; OR

**Joint Venture** - The parties to the Joint Venture authorized to sign on behalf of each party to the Joint Venture, or a person authorized by each party to the Joint Venture to sign on behalf of all parties to the Joint Venture; AND

**Surety** - A person authorized by the Surety to sign on behalf of the Surety. A power of attorney issued by the Surety Company authorizing its representative to sign the Agreement must be attached to the Agreement and each copy.

**CERTIFICATES OF INSURANCE** [Sample form provided] - If you have any questions regarding requirements for insurance certificates, please contact the City's Risk Management Office, 816 513-1299.

- Provide a certificate of insurance for all insurance that may be required in the contract such as:

- Commercial General Liability
- Workers' Compensation and Employers' Liability
- Commercial Automobile Liability
- Railroad Protective Liability
- Environmental Liability
- Asbestos Liability
- Longshoremen's Insurance
- Property Insurance

- List the NAIC Number (National Association of Insurance Commissioners) or A.M. Best Number for each Insurer listed on the Certificate of Insurance.
- Certificate "Kansas City, Missouri" must named as an Additional Insured.
- Check the insurance requirements of the Contract. If Contract Documents require that other entities be included as additional insureds, each entity shall be listed on the certificate(s).
- Description of Operations must include Project/Contract Number and Project/Contract Title/Description as contained in the Contract Documents. The Certificate Holder and address block shall be completed as follows:

Kansas City, Missouri  
**[Name of applicable City Department]**  
**[Name of Contract Administrator, Buyer, or Project Manager]**  
**[Department Address]**  
Kansas City, Missouri **[Zip Code]**

- If your insurance agent prepares an ACORD form, the automobile insurance must be "any auto" or better for acceptance by the City.

**AFFIRMATIVE ACTION REQUIREMENTS**

- Proposed Affirmative Action Program or a copy of a Certificate of Affirmative Action Compliance – One copy.

**PRE-CONTRACT BIDDER'S CERTIFICATION (Prevailing Wage Contracts; Form provided)**

- Submit form 00490 - Bidder's Pre-Contract Certification (provided).

**HEALTH AND SAFETY PLAN (If applicable)**

- Bidder's Health and Safety Plan – One copy or one CD Rom.

**EMPLOYEE ELIGIBILITY VERIFICATION AFFIDAVIT**

(Required for any contract with the City of Kansas City, Missouri in excess of \$5,000.00)

STATE OF \_\_\_\_\_ )  
 ) ss  
COUNTY OF \_\_\_\_\_ )

On this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, before me appeared \_\_\_\_\_, personally known by me or otherwise proven to be the person whose name is subscribed on this affidavit and who, being duly sworn, stated as follows:

I am of sound mind, capable of making this affidavit, and personally swear or affirm that the statements made herein are truthful to the best of my knowledge. I am the \_\_\_\_\_ (title) of \_\_\_\_\_

(business entity) and I am duly authorized, directed or empowered to act with full authority on behalf of the business entity in making this affidavit.

I hereby swear or affirm that the business entity does not knowingly employ any person in connection with the contracted services who does not have the legal right or authorization under federal law to work in the United States as defined in 8 U.S.C. § 1324a(h)(3).

I hereby additionally swear or affirm that the business entity is enrolled in an electronic verification of work program operated by the United States Department of Homeland Security (E-Verify) or an equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, under the Immigration Reform and Control Act of 1986, and that the business entity will participate in said program with respect to any person hired by the business entity to perform any work in connection with the contracted services. I have attached hereto documentation sufficient to establish the business entity’s enrollment and participation in the required electronic verification of work program.

I am aware and recognize that unless certain contractual requirements are satisfied and affidavits obtained as provided in Section 285.530, RSMo, the business entity may face liability for violations committed by its subcontractors, notwithstanding the fact that the business entity may itself be compliant.

I acknowledge that I am signing this affidavit as the free act and deed of the business entity and that I am not doing so under duress.

\_\_\_\_\_  
Affiant's signature

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Notary Public

My Commission expires:



Missouri Department of Revenue  
**Project Exemption Certificate**

This form is to be completed and given to your contractor.

<b>Exempt Entity and Project Information</b>	Name of Exempt Entity Issuing the Certificate		Missouri Tax Exemption Number			
	Address		City		State	ZIP Code
	E-mail Address					
	Project Number	Project Begin Date (MM/DD/YYYY) ____/____/____		Estimated Project End Date (MM/DD/YYYY) ____/____/____		
	Description of Project					
	Project Location			Certificate Expiration Date (MM/DD/YYYY) ____/____/____		
	Provide a signed copy of this certificate, along with a copy of the exempt entity's Missouri Sales and Use Tax Exemption Letter to each contractor or subcontractor who will be purchasing tangible personal property for use in this project. It is the responsibility of the exempt entity to ensure the validity of the information on the certificate. The exempt entity must issue a new certificate if any of the information changes.					
Signature of Authorized Exempt Entity		Printed Name of Authorized Exempt Entity		Date (MM/DD/YYYY) ____/____/____		

<b>Contractor</b>	The Missouri exempt entity named above hereby authorizes the purchase, without sales tax, of tangible personal property to be incorporated or consumed in the construction project identified herein and no other, pursuant to <a href="#">Section 144.062, RSMo</a> . Under penalties of perjury, I declare that the above information and any attached supplement is true, complete, and correct.					
	Name of Purchasing Contractor		Signature of Contractor		Date (MM/DD/YYYY) ____/____/____	
	Address		City		State	ZIP Code

<b>Subcontractor</b>	Contractors - Present this to your supplier in order to purchase the necessary materials tax exempt. Complete the Subcontractor portion if extending the certificate to your subcontractor. The contractor must sign the form in the space provided below.					
	Name of Purchasing Subcontractor					
	Address		City		State	ZIP Code
	Signature of Contractor		Contractor's Printed Name		Date (MM/DD/YYYY) ____/____/____	

Form 5060 (Revised 08-2015)

Taxation Division  
P.O Box 358  
Jefferson City, MO 65105-0358

**Phone:** (573) 751-2836  
**Fax:** (573) 522-1271  
**E-mail:** [salestaxexemptions@dor.mo.gov](mailto:salestaxexemptions@dor.mo.gov)

Visit <http://dor.mo.gov/business/sales/sales-use-exemptions.php> for additional information.



# State of Missouri

## EXEMPTION FROM MISSOURI SALES AND USE TAX ON PURCHASES

Issued to:

CITY OF KANSAS CITY  
414 E 12TH ST 3RD FLOOR  
KANSAS CITY MO 64106

Missouri Tax ID  
Number: 12490466

Effective Date:  
07/11/2002

Your application for sales/use tax exempt status has been approved pursuant to Section 144.030.1, RSMo. This letter is issued as documentation of your exempt status.

Purchases by your Agency are not subject to sales or use tax if within the conduct of your Agency's exempt functions and activities. When purchasing with this exemption, furnish all sellers or vendors a copy of this letter. This exemption may not be used by individuals making personal purchases.

A contractor may purchase and pay for construction materials exempt from sales tax when fulfilling a contract with your Agency only if your Agency issues a project exemption certificate and the contractor makes purchases in compliance with the provisions of Section 144.062, RSMo.

Sales by your Agency are subject to all applicable state and local sales taxes. If you engage in the business of selling tangible personal property or taxable services at retail, you must obtain a Missouri Retail Sales Tax License and collect and remit sales tax.

This is a continuing exemption subject to legislative changes and review by the Director of Revenue. If your Agency ceases to qualify as an exempt entity, this exemption will cease to be valid. This exemption is not assignable or transferable. It is an exemption from sales and use taxes only and is not an exemption from real or personal property tax.

Any alteration to this exemption letter renders it invalid.

If you have any questions regarding the use of this letter, please contact the Division of Taxation and Collection, P.O. Box 3300, Jefferson City, MO 65105-3300, phone 573-751-2836.



# PERFORMANCE AND MAINTENANCE BOND

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

KNOW ALL MEN BY THESE PRESENTS: That \_\_\_\_\_, as PRINCIPAL (CONTRACTOR), and \_\_\_\_\_, (SURETY), licensed to do business as such in the State of Missouri, hereby bind themselves and their respective heirs, executors, administrators, successors, and assigns unto Kansas City, Missouri, a constitutionally chartered municipal corporation, (OWNER), as obligee, in the penal sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) for the payment whereof CONTRACTOR and SURETY bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

CONTRACTOR has entered into a Contract with OWNER for \_\_\_\_\_ which Contract, including any present or future amendment thereto, is incorporated herein by reference and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if CONTRACTOR shall promptly and faithfully perform said Contract including all duly authorized changes thereto, and including any maintenance requirements contained therein, according to all the terms thereof, including those under which CONTRACTOR agrees to pay legally required wage rates including the prevailing hourly rate of wages in the locality, as determined by the Department of Labor and Industrial Relations or by final judicial determination, for each craft or type of workman required to execute the Contract and, further, shall defend, indemnify, and hold harmless OWNER from all damages, including but not limited to, liquidated damages, loss and expense occasioned by any failure whatsoever of said CONTRACTOR and SURETY to fully comply with and carry out each and every requirement of the Contract, then this obligation shall be void; otherwise, it shall remain in full force and effect.

WAIVER. That SURETY, for value received, hereby expressly agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the Work to be performed thereunder, shall in any way affect the obligations of this Bond; and it does hereby waive notice of any such change, extension of time, or alteration or addition to the terms of the Contract or the Work to be performed thereunder.

IN WITNESS WHEREOF, the above parties have executed this instrument the \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

**CONTRACTOR**

Name, address and facsimile number of Contractor

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

I hereby certify that I have authority to execute this document on behalf of Contractor.

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

(Attach corporate seal if applicable)

**SURETY**

Name, address and facsimile number of Surety:

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I hereby certify that (1) I have authority to execute this document on behalf of Surety; (2) Surety has an A.M. Best rating of A-, V, or better; (3) Surety is named in the current list of "Companies Holding Certificates of Authority as Acceptable Reinsuring Companies: as published in Circular 570 (most current revision) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury; and (4) Surety is duly licensed to issue bonds in the State of Missouri and in the jurisdiction in which the Project is located.

By: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_

(Attach seal and Power of Attorney)





## PAYMENT BOND

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

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KNOW ALL MEN BY THESE PRESENTS: That \_\_\_\_\_, as PRINCIPAL (CONTRACTOR), and \_\_\_\_\_, (SURETY), licensed to do business as such in the State of Missouri, hereby bind themselves and their respective heirs, executors, administrators, successors, and assigns unto Kansas City, Missouri, a constitutionally chartered municipal corporation, (OWNER), as obligee, in the penal sum of \_\_\_\_\_ Dollars (\$\_\_\_\_\_) for the payment whereof CONTRACTOR and SURETY bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

CONTRACTOR has entered into a contract with OWNER for \_\_\_\_\_, which Contract, including any present or future amendment thereto, is incorporated herein by reference and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if in connection with the Contract, including all duly authorized modifications thereto, prompt payment shall be made to all laborers, subcontractors, teamsters, truck drivers, owners or other suppliers or for equipment employed on the job, and other claimants, for all labor performed in such work whether done for CONTRACTOR, a subcontractor, SURETY, a completion contractor or otherwise (at the full wage rates required by any law of the United States or of the State of Missouri, where applicable), for services furnished and consumed, for repairs on machinery, for equipment, tools, materials, lubricants, oil, gasoline, water, gas, power, light, heat, oil, telephone service, grain, hay, feed, coal, coke, groceries and foodstuffs, either consumed, rented, used or reasonably required for use in connection with the construction of the work or in the performance of the Contract and all insurance premiums, both for compensation and for all other kinds of insurance on the work, for sales taxes and for royalties in connection with, or incidental to, the completion of the Contract, in all instances whether the claim be directly against CONTRACTOR, against SURETY or its completion contractor, through a subcontractor or otherwise, and, further, if CONTRACTOR shall defend, indemnify and hold harmless OWNER from all such claims, demands or suits by any such person or entity, then this obligation shall be void; otherwise, it shall remain in full force and effect.

Any conditions legally required to be included in a Payment Bond on this Contract, including but not limited to those set out in §107.170 RSMo. are included herein by reference.

SURETY agrees that, in the event that CONTRACTOR fails to make payment of the obligations covered by this Bond, it will do so and, further, that within forty-five (45) days of receiving, at the address given below, a claim hereunder stating the amount claimed and the basis for the claim in reasonable detail, it (a) will send an answer to the claimant, with a copy to OWNER stating the amounts that are undisputed and the basis for challenging any amounts that are disputed, and (b) will pay any amounts that are undisputed. The amount of this Bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder.

While this Bond is in force, it may be sued on at the instance of any party to whom any such payment is due, in the name of OWNER to the use for such party. OWNER shall not be liable for the payment of any costs or expenses of any such suit.

No suit shall be commenced or pursued hereunder other than in a state court of competent jurisdiction in Jackson, Clay or Platte County, Missouri, or in the United States District Court for the Western District of Missouri.

WAIVER. That SURETY, for value received, hereby expressly agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the Work to be performed thereunder, shall in any way affect the obligations of this Bond; and it does hereby waive notice of any such change, extension of time, or alteration or addition to the terms of the Contract or the Work to be performed thereunder.

IN WITNESS WHEREOF, the above parties have executed this instrument the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

**CONTRACTOR**

Name, address and facsimile number of Contractor

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

I hereby certify that I have authority to execute this document on behalf of Contractor.

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

(Attach corporate seal if applicable)

**SURETY**

Name, address and facsimile number of Surety:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

I hereby certify that (1) I have authority to execute this document on behalf of Surety; (2) Surety has an A.M. Best rating of A- or better; (3) Surety is 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 Circular 570 (most current revision) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury; and(4) Surety is duly licensed to issue bonds in the State of Missouri and in the jurisdiction in which the Project is located.

By: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_

(Attach seal and Power of Attorney)



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER AGENT NAME AND ADDRESS	CONTACT NAME:	
	PHONE (A/C, No, Ext):	FAX (A/C, No):
INSURED CONTRACTOR NAME AND ADDRESS	E-MAIL ADDRESS:	
	INSURER(S) AFFORDING COVERAGE	
	INSURER A : ABC INSURANCE COMPANY	
	INSURER B :	
	INSURER C :	
	INSURER D :	
INSURER E :		
INSURER F :		
NAIC #		

**COVERAGES****CERTIFICATE NUMBER:****REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<b>GENERAL LIABILITY</b> <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC	Y	Y	POLICY NUMBER	1/1/2011	Current	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 50,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 \$
A	<b>AUTOMOBILE LIABILITY</b> <input checked="" type="checkbox"/> ANY AUTO ALL OWNED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input type="checkbox"/> SCHEDULED AUTOS NON-OWNED AUTOS	Y	Y	POLICY NUMBER	1/1/2011	Current	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> EXCESS LIAB <input checked="" type="checkbox"/> RETENTION \$ 10,000 <input type="checkbox"/> OCCUR CLAIMS-MADE	Y	Y	POLICY NUMBER	1/1/2011	Current	EACH OCCURRENCE \$ 2,000,000 AGGREGATE \$ 2,000,000 \$
A	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N	N/A	Y	POLICY NUMBER	1/1/2011	<input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
A	Leased/Rented/Equip. Owned Equipment Builders Risk/Installation Floater	N/A	Y	POLICY NUMBER	1/1/2011	Current	Limit; Deductible Limit; Deductible Limit; Deductible

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Project No. \_\_\_\_\_ [Title]. Certholder (City) and \_\_\_\_\_ (Design Professional) and any other entities named in 00800 SCs are named as primary, noncontributing Additional Insureds including products and completed operations, excluding workers compensation, employers liability and professional liability. Waiver of subrogation applies as allowed by law. [The policies required above shall contain no exclusions for work expressly within the subcontractors scope of work.]

**CERTIFICATE HOLDER****CANCELLATION**

City of Kansas City, Missouri _____ [Department] _____ [Address] Kansas City, MO _____ [Zip]	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.  AUTHORIZED REPRESENTATIVE
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# AUTHORIZATION TO RELEASE A REVENUE CLEARANCE LETTER

Revenue Division  
414 East 12<sup>th</sup> Street, 2<sup>nd</sup> floor, Room 202 W  
Kansas City, MO 64106 Phone (816) 513-1135 Fax (816) 513-1077 email: revenue@kcmo.org

I authorize the City of Kansas City, Missouri, Finance Department, Revenue Division, to release a Revenue Clearance Letter for:

Name of Taxpayer: \_\_\_\_\_ Tax I.D.# \_\_\_\_\_  
*(PRINT)*

Address: \_\_\_\_\_

**Check this box and the City will send the Clearance Letter to you or the contractor designated.**

I authorize the City to provide a copy of the Taxpayer's Revenue Clearance Letter to the following:

NAME <i>(PRINT)</i>	BUSINESS NAME	TITLE
ADDRESS	CITY, STATE, ZIP CODE	
PHONE NUMBER	FAX NUMBER	E-MAIL ADDRESS

I authorize the City to provide the Taxpayer's Revenue Clearance Letter to all City Departments and to publish on the City's internet/intranet website that the Taxpayer is in compliance with the tax ordinances administered by the City's Commissioner of Revenue.

Please send my 1<sup>st</sup> Revenue Clearance Letter to: \_\_\_\_\_  
*(Print Name of City Department/Contact Person/E-mail/Fax Number)*

This authorization shall expire one (1) year from the date of the signature.

The City, Commissioner of Revenue and the Revenue Division personnel (hereinafter "the City"), are hereby held harmless from any and all liability relating to unauthorized disclosure of confidential tax information resulting from release of information under all applicable confidentiality laws including federal, state, or local including any damages sustained by wrongful transmission of confidential tax information to any other person.

UNDER PENALTIES OF PERJURY, I DECLARE THAT I HAVE EXAMINED THIS AUTHORIZATION, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT IS TRUE, CORRECT AND COMPLETE.

**I hereby certify that I am the Taxpayer named herein or that I have the authority to execute this authorization and hold harmless agreement on behalf of the Taxpayer.**

NAME <i>(PRINT)</i>	TITLE <i>(IF APPLICABLE)</i>	
SIGNATURE	PHONE NUMBER	DATE

**A FACSIMILE OF THIS DOCUMENT SHALL CONSTITUTE AN ORIGINAL**

Date

Telephone

Fax

Company Name ; With D.B.A. Name

Address

City, State, Zip

Tax payer ID: Nine digit ID Number

Attn: \_\_\_\_\_

As of this date, this notice is to inform you that TEST TAXPAYER is current with all taxes and license fees with the City of Kansas City, Mo., Finance Department/ Revenue Division.

Please note this could change if we perform a full review of your accounts in the future. We will let you know if we need to review your accounts. You will need to pay any amounts that are found due at that time.

Commissioner of Revenue

By: \_\_\_\_\_  
Signature

Representatives Name and Title

**IMPORTANT INFORMATION:**

Due to the confidential nature of tax information, this notice is provided directly to the taxpayer.

If you are working on or have a contract with the City of Kansas City, Missouri, a copy of this clearance letter will need to be provided to the contracting department, In accordance with Manual of Instruction 4-1, Article VII, Section B, for City contractors and subcontractors, the clearance letter must be dated not more than sixty (60) days: (1) before a bidder is provided written notice of intent to contract by the City, (2) before a subcontractor begins work, (3) before the filing of an application for final payment to a contractor, and (4) before the date of a contractor's final payment to a subcontractor.



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DB 00700 Design-Build General Conditions 061621

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## ARTICLE 1 DEFINITIONS AND TERMINOLOGY

### 1.01 Defined Terms

A. Wherever used in these General Conditions or in the other Contract Documents, the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

1. **Addenda** - Written or graphic instruments issued prior to the opening of Bids that clarify, correct or change the Bidding Requirements or the Contract Documents.
2. **Agreement** - The written Contract between CITY and DESIGN-BUILDER governing the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof as provided therein.
3. **Application for Payment** - The form accepted by CITY's Representative which is to be used by DESIGN-BUILDER in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
4. **Asbestos** - Any material that contains more than one percent (1%) Asbestos and is friable or is releasing Asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
5. **Bid** - consists of (1) the Technical Approach Submittal of the DESIGN-BUILDER providing information on the design and construction Work to be undertaken by DESIGN-BUILDER for the Project and (2) the Price Submittal setting forth the firm, fixed price for which the DESIGN-BUILDER agrees to perform all of the Work required by the Contract Documents.
6. **Bidder** - One who submits a Bid directly to CITY, as distinct from a sub-bidder who submits a bid to a Bidder. If the CITY executes the Bid Form/Contract submitted by Bidder, the term "Bidder" shall mean DESIGN-BUILDER in both the Bidding Documents and Contract Documents unless the context clearly indicates otherwise.
7. **Bidding Documents** - The advertisement or Invitation to Bid, Instructions to Bidders, the Bid Form/Contract, and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).
8. **Bidding Requirements** - The advertisement or invitation to bid, Instructions to Bidders, Bid security, and the Bid Form/Contract with any supplements.
9. **Bonds** - Payment Bond and Performance and Maintenance Bond and other instruments of security.
10. **Calendar Day** - Any day shown on the calendar, including Saturdays, Sundays, and holidays.
11. **Change Order** - A written document issued by CITY that authorizes an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Contract.
12. **CITY/OWNER** - Kansas City, Missouri, a constitutionally chartered municipal corporation, with which DESIGN-BUILDER has entered into the

Contract and for whom the Work is to be provided.

**13. CITY's Project Design and Construction Criteria** - are set forth in the Project Information portion of the Bidding Documents, and are those criteria developed by or for CITY to describe CITY's program requirements and objectives for the Project, including use, space, price, time, site, and expandability requirements, as well as submittal requirements and other requirements governing DESIGN-BUILDER's performance of the Work. CITY's Project Design and Construction Criteria may include, without limitation, survey information; interior space requirements; material quality standards; schematic layouts and conceptual design criteria; cost or budget estimates; design and construction schedules; site development requirements; provisions for utilities, storm water retention and disposal, and parking requirements; standards, codes, and design manuals required to be employed; aesthetic considerations; conceptual documents; design criteria and performance-based criteria and requirements; and other Project-specific technical materials and requirements.

**14. CITY's Representative** - Person or agency designated to act for the Director as provided in these Contract Documents.

**15. Construction Documents** - means the complete and detailed drawings and specifications prepared or furnished by the DOR that provide the detailed requirements for construction of the Project, including, without limitation, defining the quantities and qualities of, and the relationships among, all of the materials and equipment needed to construct and deliver to CITY a finished and functional Project that conforms to CITY's Project Design and Construction Criteria.

**16. Consultant** - a person, firm, or corporation having a contract with CITY to furnish services as an independent professional associate or consultant (including, without limitation, as a construction manager, construction advisor, or program manager) with respect to the Project and who is identified as such in the Supplementary Conditions. The term "Consultant" also includes such person's firms, or corporation's agents, officers, directors, or employees.

**17. Contract** - The entire and integrated written agreement between CITY and DESIGN-BUILDER concerning the Work that incorporates all Contract Documents. The Bid Form/Contract submitted by Bidder is the Contract between CITY and DESIGN-BUILDER upon execution by CITY. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

**18. Contract Documents** - The Contract Documents establish the rights and obligations of the parties and include the Contract, Addenda (which pertain to the Contract Documents), DESIGN-BUILDER's Bid Form/Contract (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Intent to Contract), the HRD Construction Project Instructions, the DESIGN-BUILDER's Utilization Plan/Request for Waiver, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Project Manual and the certification page(s) of the CITY and Consultant(s), together with approved project baseline schedule and amendments thereto and all Written Amendments, Change Orders, Work Change Directives, and CITY's written interpretations and clarifications issued on or after the Effective Date of the Contract, and approved Shop Drawings. Reports

and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this Paragraph are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by CITY to DESIGN-BUILDER are not Contract Documents, except project schedules submitted by DESIGN-BUILDER and approved by CITY.

**19. Contract Price** - The money payable by CITY to DESIGN-BUILDER for completion of the Work in accordance with the Contract Documents as stated in the Agreement.

**20. Contract Times** - the number of calendar days or the date(s) stated in the Contract Documents for DESIGN-BUILDER to achieve certain Milestones, to achieve Substantial Completion of the Work, or portions of the Work, and to complete the entire Work such that DESIGN-BUILDER is entitled to receive final payment.

**21. Day** – Shall constitute a Calendar Day.

**22. DESIGN-BUILDER** - is the single entity or combination of persons and/or entities having the licensure, qualifications, and capability to perform as both a Designer of Record and a DESIGN-BUILDER on the Project, authorized by law to do business in Missouri and to perform or furnish professional design services and construction services for the Project, with whom CITY has entered into the Contract.

**23. Designer of Record or DOR** - is the qualified design professional member of DESIGN-BUILDER, holding a currently valid license or certificate of authority issued by the State of Missouri pursuant to Chapter 327, Revised Statutes of Missouri, who is to perform, provide for the performance of, oversee, and coordinate all of the professional design services for the Project, either directly, through employees or associates, or through agreements with Design Subconsultants; who shall review and approve all shop drawings issued on the Project; who shall coordinate the services of all design professionals and trade disciplines on the Project; who shall confirm the compliance of the Project as designed and constructed with the design intent of CITY's Project Design and Construction Criteria; and who shall bear ultimate responsibility for the accuracy, completeness, quality, and propriety of all professional design services performed on the Project.

**24. Design Subconsultant** means those qualified design professionals other than the DOR holding currently valid licenses or certificates of authority issued by the State of Missouri pursuant to Chapter 327, Revised Statutes of Missouri, who are retained by the DESIGN-BUILDER, the DOR, or the GC to perform or furnish professional design services for the Project.

**25. Director** - The term Director shall mean the duly appointed executive officer of a department of CITY who is empowered by the City Charter or by the City Council to enter into a contract on behalf of CITY, or to grant a permit for improvements to land owned by CITY. A Director is authorized to delegate this authority to a CITY employee so designated in writing.

**26. Drawings** - The drawings which graphically show the scope, extent and character of the Work to be furnished and performed by DESIGN-BUILDER and

which have been prepared by DESIGN PROFESSIONAL and are included in the Contract Documents. Shop Drawings are not Drawings as so defined.

**27. *Effective Date of the Contract*** - The date indicated in the Contract on which it becomes effective, but if no such date is indicated it means the date on which the Contract is fully executed by CITY.

**28. *DESIGN-BUILDER or GC*** - means that member of DESIGN-BUILDER, qualified to perform construction services for the Project in the City of Kansas City, Missouri, who is to perform or oversee the performance of the construction services for the Project, either directly or through agreements with Subcontractors; who shall oversee and coordinate the services of all trade disciplines on the Project; who shall ensure the compliance of the Project, as constructed, with the Project design documents; and who shall bear responsibility for the accuracy, completeness quality, and propriety of all construction services performed on the Project.

**29. *General Requirements*** - Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

**30. *Hazardous Environmental Condition*** - The presence at the Site of Asbestos, Lead-Based Paint, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

**31. *Hazardous Waste*** - The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

**32. *Laws or Regulations*** - Any and all applicable laws, rules, regulations, ordinances, codes and orders of any and all governmental bodies, agencies, authorities and courts having jurisdiction.

**33. *Lead Architect*** - refers to that natural person, identified by DESIGN-BUILDER as such in the Key Personnel portion of the Technical Approach Submittal of DESIGN-BUILDER's Bid, who is undertaking primary responsibility for the performance and furnishing of all professional design services for the Project and for the other obligations of the DOR under the Contract Documents.

**34. *Lead-Based Paint*** - Any paint, varnish, stain, or other applied coating that has one (1) mg or more of lead per square centimeter. The terms "leaded paint" and "lead-containing paint" are synonymous with Lead-Based Paint.

**35. *Liens*** - Liens, charges, security interests or encumbrances upon real property or personal property.

**36. *Milestone*** - A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

**37. *Notice of Intent to Contract*** - The written notice by CITY to the apparent successful Bidder stating that upon compliance by that apparent successful Bidder with the conditions in the Bid Documents enumerated, within the time specified, and upon enactment of an appropriate ordinance or resolution, CITY will sign and deliver the Contract.

- 38. Notice to Proceed** - The written notice given by CITY to DESIGN-BUILDER, establishing the date on which the Contract Time(s) will commence to run and on which date DESIGN-BUILDER shall begin to perform its obligations under the Contract Documents. The term includes, without limitation, the Contract Notice to Proceed, the Design Notice to Proceed, and/or the Construction Notice to Proceed, as defined in the Contract for DESIGN-BUILDER Services... DESIGN-BUILDER shall perform no Work or services prior to the date on which the Contract Time(s) commence to run.
- 39. Partial Utilization** - Use by CITY of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.
- 40. PCBs** - Polychlorinated biphenyls.
- 41. Petroleum** - Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Wastes and crude oils.
- 42. Project** - The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.
- 43. Project Manual** - The documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual may be issued in one or more volumes and is contained in the table(s) of contents.
- 44. Request for Qualifications or RFQ** - is the written solicitation issued by CITY for the Project, requesting preparation and submission of Statements of Qualifications by interested Applicants.
- 45. Radioactive Material** - Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
- 46. Samples** - Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
- 47. Shop Drawings** - All drawings, diagrams, illustrations, schedules and other data or information which are specifically prepared or assembled by or for DESIGN-BUILDER and submitted by DESIGN-BUILDER to illustrate some portion of the Work.
- 48. Site** - Lands or areas indicated in the Contract Documents as being furnished by CITY upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by CITY which are designated for the use of DESIGN-BUILDER.
- 49. Specifications** - Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

**50. Statement of Qualifications or SOQ** - Written and/or graphic description of the credentials, qualifications, experience, and other information about an Applicant that is responsive to the evaluation criteria set forth in the RFQ.

**51. Subcontractor** - Any individual, firm, partnership, company, corporation or association licensed or otherwise authorized by law to do business in Missouri, to whom DESIGN-BUILDER, with written notification to CITY, has entered into an agreement to perform a part of the Work.

**52. Substantial Completion** - When Work (or a specified part thereof) has progressed to the point where, in the opinion of CITY as evidenced by CITY's definitive certificate of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) 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.

**53. Supplementary Conditions** - The part of the Contract Documents which amends and/or supplements these General Conditions.

**54. Supplier**- A manufacturer, fabricator, supplier, distributor, material man or vendor having a direct contract with DESIGN-BUILDER or with any Subcontractor to furnish materials or equipment to be incorporated into the Work by DESIGN-BUILDER or any Subcontractor.

**55. Underground Facilities** - All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

**56. Unit Price Work** - Work to be paid for on the basis of unit prices.

**57. Work** - The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work includes and is the result of performing or furnishing labor, and furnishing and incorporating material and equipment into the construction, and furnishing documents, all as required by the Contract Documents.

**58. Work Change Directive** - A written directive to DESIGN-BUILDER, issued on or after the Effective Date of the Contract, signed by CITY and recommended by CITY, ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed, or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times, but is evidence that the parties expect that the change directed or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

**59. Written Amendment**- A written statement modifying the Contract Documents, signed by CITY and DESIGN-BUILDER on or after the Effective Date of the Contract and normally dealing with the non-engineering or non-

technical rather than strictly construction-related aspects of the Contract Documents.

## **1.02 Terminology**

### **A. Intent of Certain Terms or Adjectives**

1. Whenever in the Contract Documents the terms "as ordered," "as directed," "as required," "as allowed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper" or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review or judgment of CITY as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed 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 shall not be effective to assign to CITY any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.08 or any other provision of the Contract Documents.

### **B. Defective**

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty or deficient, in that it does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or has been damaged prior to CITY's Representative's recommendation of final payment (unless responsibility for the protection thereof has been assumed by CITY at Substantial Completion in accordance with Paragraph 13.5).

### **C. 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. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of DESIGN-BUILDER, "provide" is implied.

**D.** Unless stated otherwise in the Contract Documents, words and phrases which have a well-known technical or construction industry or trade meanings are used in the Contract Documents in accordance with such recognized meaning.

## **ARTICLE 2 PRELIMINARY MATTERS**

## **2.01 Delivery of Bonds**

A. DESIGN-BUILDER shall deliver to CITY such Bonds as DESIGN-BUILDER may be required to furnish.

## **2.02 Evidence of Insurance**

A. DESIGN-BUILDER shall deliver to CITY certificates of insurance or other evidence of insurance that CITY may request, which DESIGN-BUILDER is required to purchase and maintain in accordance with Article 5 or any other applicable provision in the Contract Documents.

## **2.03 Copies of Documents**

A. CITY shall furnish to DESIGN-BUILDER one (1) copy of the Drawings and Specifications, including addenda.

## **2.04 Commencement of Contract Times; Notice to Proceed**

A. The Contract Times will commence to run on the date indicated in the Notice to Proceed.

## **2.05 Starting the Work**

A. DESIGN-BUILDER shall start to perform the Work on the date when the Contract Times commence to run, but no Work shall be done at the Site prior to the date on which the Contract Times commence to run, unless otherwise indicated in the Notice to Proceed.

## **2.06 Before Starting Construction**

A. Preliminary Schedules: Within ten (10) days after the Effective Date of the Contract or on such later date as CITY's Representative shall provide in writing, DESIGN-BUILDER shall submit to CITY's Representative for review:

1. Preliminary Progress Schedule: DESIGN-BUILDER shall submit a proposed project schedule for CITY's acceptance. The proposed project schedule shall include a detailed and comprehensive design and construction schedule utilizing a critical path method diagram network that (a) shows all major procurement and construction elements and phases of the Project; (b) breaks down each element or phase by trade; (c) shows early and late starts so that all float time will be accurately identified; (d) all other activities necessary for the timely completion of the Project in accordance with the scheduled dates for Substantial and Final Completion; and (e) highlights the project's critical path. CITY's acceptance is expressly limited to CITY's acknowledgement that, based upon CITY's limited review, the dates of Substantial Completion and Milestone dates are acceptable. After final acceptance of the preliminary progress schedule by the CITY, it shall be considered the project baseline schedule pursuant to Paragraph 2.07(B).

2. Preliminary schedule of Shop Drawings and Sample submittals which will list each required submittal and the times for submitting, reviewing and processing such submittal; and

3. Preliminary 01290.02 Schedule of Values for all of the Work which will include quantities and prices of items which when added together equals the Contract Price and will subdivide 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.

## **2.07 Initially Acceptable Schedules**

**A.** Thirty day interim schedule: The DESIGN-BUILDER shall prepare and submit to the CITY a 30-day interim schedule within seven (7) Calendar Days after the Notice to Proceed. This schedule shall contain the sequence and dates of major work for the entire duration of the Work, including the following activities.

1. The construction activities to be accomplished or commenced during the first thirty (30) Calendar Days following the Notice to Proceed;
2. Procurement and submittal approvals, fabrication and delivery of all long lead time procurement activities;
3. Activities or Milestones that may be affected by the actions of the CITY or third parties.

The DESIGN-BUILDER shall incorporate the CITY's comments and resubmit the 30-day interim schedule within seven (7) Calendar Days from receipt of the CITY's comments.

**B.** Project Baseline Schedule: The DESIGN-BUILDER's 30-day interim schedule, as revised by the CITY pursuant to Paragraph 2.07A, shall be considered the baseline schedule and shall be used by the DESIGN-BUILDER for planning, scheduling, managing, and executing the Work. The baseline schedule shall not be changed without the written consent of CITY.

**C.** DESIGN-BUILDER's schedule of values will be acceptable to CITY's Representative as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

## **ARTICLE 3 CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE**

### **3.01 Intent**

**A.** The Contract Documents comprise the entire Contract between CITY and DESIGN-BUILDER concerning the Work.

**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. Any Work, materials or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be furnished and performed whether or not specifically called for at no additional cost to CITY. Clarifications and interpretations of the Contract Documents shall be issued by CITY.

**C.** Correlation and intent of documents: The Drawings and Specifications are intended to supplement each other. Any Work shown on the Drawings and not mentioned in the Specifications (or vice versa) shall be as binding and shall be completed the same as if mentioned or shown on both. In the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following priorities:

1. The Contract, including all Change Orders and Written Amendments
2. Approved Shop Drawings
3. Addenda, with those of later date having precedence over those of earlier

date

4. Project Baseline Schedule Requirements
5. The Supplementary Conditions
6. The General Conditions
7. Drawings and Specifications

**D.** In the case of an inconsistency between Drawings and Specifications, the requirements of the Specifications shall govern. If Drawings are in conflict, larger scale details shall govern over smaller or no-scale Drawings. If Specification sections are in conflict with each other, the conflict shall be resolved by CITY in accordance with reasonable interpretation of such documents.

**E.** The general character of the detailed Work is shown on the Drawings, but minor modifications may be made in the full size or scale details. Where the word "similar" occurs on the Drawings, it shall be used in its general sense and not as meaning identical, and all details shall be worked out in relation to their location and their connection to the other parts of the Work. Where on any Drawings a portion of the Work is drawn out and the remainder is indicated in outline, the parts drawn out shall apply also to all other like portions of the Work. Where ornaments or other details are indicated by starting only, such details shall be continued throughout the courses or parts in which they occur and shall also apply to all other similar parts in the Work, unless otherwise indicated.

### **3.02 Reference to Standards and Specifications of Technical Societies**

**A.** Reference to standards, specifications, manuals 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 latest standard, specification, manual, code or Laws or Regulations in effect at the time of opening of Bids (or on the date of DESIGN-BUILDER's proposal if there are no Bids), except as may be otherwise specifically stated in the Contract Documents.

1. No provision of any such standard, specification, manual, code or instruction of Supplier shall be effective to change the duties or responsibilities of CITY, or DESIGN-BUILDER, or any of their Subcontractors, Consultants, agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to CITY or any of CITY's Consultants, agents or employees any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

### **3.03 Reporting and Resolving Discrepancies**

**A.** Reporting Discrepancies: If, during the performance of the Work, DESIGN-BUILDER discovers any conflict, error, ambiguity or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Laws or Regulations applicable to the performance of the Work or of any standard, specification, manual, code or any instruction of any Supplier referred to in Paragraph 6.07, DESIGN-BUILDER shall report it immediately to CITY in writing. DESIGN-BUILDER shall not proceed with the Work affected thereby (except in an emergency as authorized by Paragraph 6.17) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04; provided, however,

that DESIGN-BUILDER shall not be liable to CITY or CITY's Consultants for failure to report any such conflict, error, ambiguity or discrepancy unless DESIGN-BUILDER knew or reasonably should have known thereof.

**B. Resolving Discrepancies.** The provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity or discrepancy between the provisions of the Contract Documents and:

1. the provisions of any standard, specification, manual, code or instruction (whether or not specifically incorporated by reference in the Contract Documents); or
2. the provisions of any Laws or Regulations applicable to the performance of the Work.

### **3.04 Amending and Supplementing Contract Documents**

**A.** The Contract Documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

1. a Written Amendment or
2. a Change Order (pursuant to Article 10), whether pursuant to a Work Change Directive or otherwise.

**B.** The requirements of the Contract Documents may be supplemented and minor variations and deviations in the Work may be authorized, in one or more of the following ways:

1. CITY's approval of a Shop Drawing or Sample, or
2. CITY's written interpretation or clarification.

## **ARTICLE 4 AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS**

### **4.01 Availability of Lands**

**A.** CITY shall furnish the Site. CITY shall identify any encumbrances or restrictions not of general application but specifically related to use of lands so furnished with which DESIGN-BUILDER will have to comply in performing the Work. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by CITY, unless otherwise provided in the Contract Documents. If DESIGN-BUILDER and CITY are unable to agree on entitlement to or the amount or extent of any adjustments in the Contract Price or the Contract Times or both as a result of any delay in CITY's furnishing these lands, rights-of-way or easements, DESIGN-BUILDER may make a Claim as provided in Article 15. DESIGN-BUILDER shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

### **4.02 Subsurface and Physical Conditions**

**A.** Reports and Drawings: Reference is made to the Supplementary Conditions for identification of:

1. Subsurface Conditions: Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that have been utilized by CITY in preparing the Contract Documents; and

2. Physical Conditions: Those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that have been utilized by CITY in preparing the Contract Documents.

**B. Limited Reliance by DESIGN-BUILDER on Technical Data Authorized:** DESIGN-BUILDER may rely upon the general accuracy of the technical data contained in reports and drawings of subsurface or physical conditions, but such reports and drawings are not Contract Documents. The technical data is identified in the Supplementary Conditions. Except for reliance on such technical data, DESIGN-BUILDER may not rely upon or make any Claim against CITY, or CITY's Consultants with respect to:

1. the completeness of such reports and drawings for DESIGN-BUILDER's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by DESIGN-BUILDER 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 DESIGN-BUILDER interpretation of or conclusion drawn from any technical data or any such other data, interpretations, opinions or information.

#### **4.03 Differing Subsurface or Physical Conditions**

**A. Notice of Differing Subsurface or Physical Conditions.** If DESIGN-BUILDER believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any technical data on which DESIGN-BUILDER is entitled to rely as provided in Paragraphs 4.02 A and 4.02 B is materially inaccurate; or
2. is of such a nature as to require a change in the Contract Documents; 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 DESIGN-BUILDER 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 6.17), notify CITY in writing about such condition(s). DESIGN-BUILDER shall not further disturb such conditions or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

**B. CITY's Review:** After receipt of notice as required by Paragraph 4.03 A, CITY will promptly review the pertinent conditions, determine the necessity for CITY to obtain additional exploration or tests with respect thereto and notify DESIGN-BUILDER in writing of CITY's findings and conclusions.

**C. Possible Contract Documents Change:** If CITY concludes that a change in the Contract Documents is required as a result of a condition that meets one or more of the categories in Paragraph 4.03 A, a Work Change Directive or a Change Order will be issued as provided in Article 10 to reflect and document the consequences of such

change.

**D. Possible Price or Times Adjustments:** An equitable adjustment in the Contract Price or in the Contract Times, or both, will be allowed to the extent that the existence of a subsurface or physical condition causes an increase or decrease in DESIGN-BUILDER's cost of, or time required for, performance of the Work; subject, however, to the following:

1. the condition must meet any one or more of the categories described in Paragraphs 4.03 A.1 through 4.03 A.4, inclusive;
2. a change in the Contract Documents pursuant to Paragraph 4.03 C will not be an automatic authorization of, nor a condition precedent to, entitlement to any such adjustments;
3. 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 Paragraphs 9.06 and 10.04; and
4. DESIGN-BUILDER shall not be entitled to any adjustment in the Contract Price or Contract Times if;
  - a. DESIGN-BUILDER knew, or by the exercise of ordinary care could have known, of such conditions at the time DESIGN-BUILDER made a final commitment to CITY with respect to Contract Price and Contract Times by the submission of a Bid; or
  - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for DESIGN-BUILDER prior to DESIGN-BUILDER's making such final commitment; or
  - c. DESIGN-BUILDER failed to give the written notice as required by Paragraph 4.03 A.

**E.** If CITY and DESIGN-BUILDER are unable to agree on entitlement to, or magnitude of, an equitable adjustment in the Contract Price pursuant to Article 10 and/or Contract Times pursuant to Article 11, a Claim may be made therefore as provided in Article 15. However, CITY, CITY's Consultants shall not be liable to DESIGN-BUILDER for any costs, losses or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all other dispute resolution costs) sustained by DESIGN-BUILDER on or in connection with any other project or anticipated project.

#### **4.04. Physical Conditions - Underground Facilities**

**A. Shown or Indicated:** The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to CITY by the owners of such Underground Facilities or by others.

1. CITY shall not be responsible for the accuracy or completeness of any such information or data; and
2. The cost of all of the following will be included in the Contract Price and DESIGN-BUILDER shall have full responsibility for:

- a. reviewing and checking all such information and data,
- b. locating all Underground Facilities shown or indicated in the Contract Documents,
- c. coordination of the Work with the owners of such Underground Facilities during construction, and
- d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

**B. Not Shown or Indicated:** If an Underground Facility is uncovered or revealed at or contiguous to the Site, and was not shown or indicated in the Contract Documents, or was shown or indicated incorrectly in the Contract Documents, DESIGN-BUILDER 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 6.17), identify the owner of such Underground Facility and give written notice to that owner and to CITY.

**C. CITY's Review:** After receipt of notice as required by Paragraph 4.04 B, CITY will promptly review the consequences of the existence of the Underground Facility and notify DESIGN-BUILDER in writing CITY's findings and conclusions.

**D. Possible Contract Documents Change:** If CITY concludes that a change in the Contract Documents is required as a result of the existence of an Underground Facility that either was not shown, or was shown incorrectly, in the Contract Documents, a Work Change Directive or Change Order will be issued as provided in Article 10 to reflect and document the consequences of such change.

**E. Possible Price or Times Adjustments:** An equitable adjustment in the Contract Price or in the Contract Times, or both, will be allowed to the extent that the existence of the Underground Facility causes an increase or decrease in DESIGN-BUILDER's cost of, or time required for, performance of the Work; subject, however, to the following:

1. a change in the Contract documents pursuant to Paragraph 4.04 D will not be an automatic authorization of, nor a condition precedent to, entitlement to any such adjustments;
2. 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 Paragraphs 9.06 and 10.04; and
3. DESIGN-BUILDER shall not be entitled to any adjustment in the Contract Price or Contract Times if;
  - a. DESIGN-BUILDER knew, or by the exercise of ordinary care could have known, of the existence of the Underground Facility at the time DESIGN-BUILDER made a final commitment to CITY with respect to Contract Price and Contract Times by the submission of a Bid; or
  - b. the existence of the Underground Facility could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for DESIGN-BUILDER prior to DESIGN-BUILDER's making such final commitment; or

c. DESIGN-BUILDER failed to give the written notice as required by Paragraph 4.04 B.

F. If CITY and DESIGN-BUILDER are unable to agree on entitlement to, or magnitude of, an equitable adjustment in the Contract Price pursuant to Article 10 and/or Contract Times pursuant Article 11, a Claim may be made therefore as provided in Article 15. However, CITY and CITY's Consultants shall not be liable to DESIGN-BUILDER for any costs, losses or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all other dispute resolution costs) sustained by DESIGN-BUILDER on or in connection with any other project or anticipated project.

#### **4.05 Reference Points**

A. CITY shall provide engineering surveys to establish reference points for construction that in CITY's judgment are necessary to enable DESIGN-BUILDER to proceed with the Work. DESIGN-BUILDER 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 CITY. DESIGN-BUILDER shall report to CITY 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.

#### **4.06 Asbestos, Lead-Based Paint, PCBs, Petroleum, Hazardous Waste or Radioactive Material**

A. Reports and Drawings: Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the CITY in the preparation of the Contract Documents.

B. Limited Reliance by DESIGN-BUILDER on Technical Data Authorized: DESIGN-BUILDER may rely upon the general accuracy of the technical data contained in reports and drawings relating to a Hazardous Environmental Condition at the Site, but such reports and drawings are not Contract Documents. Such technical data is identified in the Supplementary Conditions. Except for such reliance on such technical data, DESIGN-BUILDER may not rely upon or make any Claim against CITY, or CITY's Consultants with respect to:

1. the completeness of such reports and drawings for DESIGN-BUILDER's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by DESIGN-BUILDER 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 DESIGN-BUILDER interpretation of or conclusion drawn from any technical data or any such other data, interpretations, opinions or information.

C. DESIGN-BUILDER shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. DESIGN-BUILDER shall be responsible for all Hazardous

Environmental Conditions created with any materials brought to the Site by DESIGN-BUILDER, Subcontractors, Suppliers, or anyone else for whom DESIGN-BUILDER is responsible. DESIGN-BUILDER shall not be entitled to an extension of the Contract Times or an increase in the Contract Price if DESIGN-BUILDER, Subcontractor, Supplier or anyone for whom DESIGN-BUILDER is responsible created any Hazardous Environmental Condition at the Site or in connection with the Work.

**D.** If DESIGN-BUILDER encounters a Hazardous Environmental Condition at the Site or if DESIGN-BUILDER or anyone for whom DESIGN-BUILDER is responsible creates a Hazardous Environmental Condition at the Site, DESIGN-BUILDER 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 6. 15); and
3. notify CITY (and promptly thereafter confirm such notice in writing). CITY shall promptly determine the necessity for CITY to retain a qualified expert to evaluate such condition or take corrective action, if any.

**E.** DESIGN-BUILDER shall neither resume Work nor be required to resume Work in connection with such condition or in any affected area until after CITY has obtained any required permits related thereto and delivered to DESIGN-BUILDER written notice:

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. If CITY and DESIGN-BUILDER cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price pursuant to Article 10 and/or Contract Times to pursuant to Article 11 as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by DESIGN-BUILDER, a Claim may be made therefore as provided in Article 15.

**F.** If after receipt of written notice as required in Paragraph 4.06 E, DESIGN-BUILDER does not agree to resume Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under special conditions specified in the notice, then CITY may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If CITY and DESIGN-BUILDER cannot agree as to entitlement to or magnitude of an equitable adjustment in Contract Price pursuant to Article 10 and/or Contract Times pursuant to Article 11 as a result of deleting such portion of the Work, then a Claim may be made therefore as provided in Article 15. CITY may have such deleted portion of the Work performed by CITY's own forces or others in accordance with Article 7.

**G.** The provisions of Paragraphs 4.02, 4.03, and 4.04 are not intended to apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

**H.** All materials used, whether new or salvaged, shall be asbestos-free materials. DESIGN-BUILDER shall immediately call to the attention of the CITY's Representative any specified material or product which the DESIGN-BUILDER knows or suspects to contain asbestos, whether new or salvaged.

## **ARTICLE 5 BONDS AND INSURANCE**



## **5.01 Performance, Payment and Other Bonds**

**A.** DESIGN-BUILDER shall furnish Performance and Maintenance and Payment Bonds, each in an amount at least equal to the Contract Price, as set out in the Contract Documents, as security for the faithful performance and payment of all DESIGN-BUILDER's obligations under the Contract Documents. These Bonds shall remain in effect at least until one (1) year after the date when final payment of the Contract becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. DESIGN-BUILDER shall also furnish such other Bonds as are required by the Supplementary Conditions.

**B.** All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations. A certified copy of the agent's authority to act must accompany all Bonds signed by an agent.

**C.** If the surety on any Bond furnished by DESIGN-BUILDER is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirement of Paragraph 5.01 B, DESIGN-BUILDER shall within twenty (20) days thereafter substitute another Bond and surety, both of which must be acceptable to CITY.

## **5.02 Licensed Sureties and Insurers**

**A.** All Bonds and insurance required by the Contract Documents to be purchased and maintained by CITY or DESIGN-BUILDER shall be obtained from surety or insurance companies that are duly licensed in the State of Missouri and in the jurisdiction in which the Project is located, if not in Missouri, to issue Bonds or insurance policies for the limits and coverages so required. All surety and insurance companies shall hold an A.M. Best rating of A-, V, or better.

## **5.03 Certificates of Insurance**

**A.** DESIGN-BUILDER shall deliver to CITY, prior to the start of any Work at the Project Site, properly completed certificates of insurance or other evidence that the required insurance is in full force and effect, in a form acceptable to CITY. The receipt or acceptance of a certificate of insurance that does not incorporate the required terms and coverage shall not constitute a waiver by the City of the insurance requirements contained in the Contract Documents.

**B.** All policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained by DESIGN-BUILDER in accordance with Paragraphs 5.04 and 5.06 will contain waiver provisions in accordance with Paragraph 5.07 A. The certificates of insurance will contain a provision stating that should any of the policies described in the certificate be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

**C.** If the coverage afforded is cancelled or changed or its renewal is refused, DESIGN-BUILDER shall give at least thirty (30) days prior written notice to CITY and to each other additional insured to whom a certificate of insurance has been issued.

## **5.04 DESIGN-BUILDER's Liability Insurance**

**A.** DESIGN-BUILDER shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and furnished, and will provide protection from claims set forth below which may arise out of or result from DESIGN-BUILDER's performance and furnishing of the Work and DESIGN-BUILDER's other

obligations under the Contract Documents, whether it is to be performed or furnished by DESIGN-BUILDER, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform or furnish any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits and other similar employee benefit acts;
2. claims for damages because of bodily injury, occupational sickness or disease, or death of DESIGN-BUILDER's employees;
3. claims for damages because of bodily injury, sickness or disease, or death of any person other than DESIGN-BUILDER's employees;
4. claims for damages insured by customary personal injury liability coverage;
5. 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 therefore; and
6. 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.

**B.** The policies of insurance so required by Paragraph 5.04 A, to be purchased and maintained shall:

1. with respect to insurance required by Paragraphs 5.04 A.3 through 5.04 A.5 inclusive, include as additional insureds (subject to any customary exclusion for professional liability) CITY, Consultants and any other individuals or entities identified in the Supplementary Conditions to be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, and other 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;
2. include at least the specific coverages and be written for not less than the limits of liability provided in Paragraph 5.04 C or required by Laws or Regulations, whichever is greater;
3. include completed operations insurance;
4. include contractual liability insurance covering DESIGN-BUILDER's indemnity obligations;
5. remain in effect at least until final payment and at all times thereafter when DESIGN-BUILDER may be correcting, removing or replacing defective Work in accordance with Paragraphs 13.06 and 13.07;
6. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two (2) years after final payment (and DESIGN-BUILDER shall furnish CITY and each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued evidence satisfactory to CITY and any such additional insured of continuation of such insurance);

7. contain a cross-liability or severability of interest clause or endorsement. Insurance covering the specified additional insureds shall be primary insurance, and all other insurance carried by the additional insureds shall be excess insurance;

8. with respect to commercial automobile liability, commercial general liability, and umbrella liability insurance, DESIGN-BUILDER shall require its insurance carrier(s) to waive all rights of subrogation against CITY, and CITY's officers, directors, partners, employees and agents; and

9. contain a provision or endorsement that the costs of providing the insureds a defense and appeal, including attorneys fees, as insureds, shall be supplementary and shall not be included as part of the policy limits but shall remain the insurer's responsibility.

**C. Specific policies of insurance required by this Paragraph 5.04 shall include:**

1. Workers' Compensation and Employers' Liability Insurance. This insurance shall protect DESIGN-BUILDER against all claims under applicable state workers' compensation laws, including coverage as necessary for the benefits provided under the United States Longshoremen's and Harbor Workers' Act and the Jones Act. DESIGN-BUILDER shall also be protected against claims for injury, disease, or death of employees which, for any reason, may not fall within the provisions of workers' compensation laws. This policy shall include an "all states" or "other states" endorsement. The liability limits shall be not less than:

Workers' Compensation: Statutory

Employers' liability: \$1,000,000 each occurrence

2. Commercial Automobile Liability Insurance. This insurance shall be occurrence type written in comprehensive form and shall protect DESIGN-BUILDER, and CITY, and Consultants against all claims for injuries to members of the public and damage to property of others arising from the use of motor vehicles, either on or off the Project Site, whether they are owned, non-owned, or hired.

The liability limits shall be not less than: \$2,000,000

3. Commercial General Liability Insurance. This insurance shall be occurrence type written in comprehensive form acceptable to CITY. This insurance shall protect DESIGN-BUILDER, and CITY, and Consultants as additional insureds, against claims arising from injuries, sickness, disease, or death of any person or damage to property arising out of performance of the Work. The policy shall also include coverage for personal injury liability; contractual liability; completed operations and products liability; and for blasting, explosion, and collapse of buildings; and damage to underground property. The liability limits for bodily injury and property damage shall be not less than:

\$2,000,000 combined single limit for each occurrence

\$2,000,000 general aggregate.

4. Professional Liability Insurance with limits Per Claim/Annual Aggregate of \$2,000,000.

5. The insurer's costs of providing the insureds a defense and appeal as additional insureds, including attorney's fees, shall be supplementary and shall not

be included as part of the policy limits but shall remain the insurer's separate responsibility.

### **5.05 CITY's Liability Insurance**

**A.** In addition to the insurance required to be provided by DESIGN-BUILDER under Paragraph 5.04, CITY, at CITY's option, may purchase and maintain at CITY's expense liability insurance that will protect CITY against claims which may arise from operations under the Contract Documents.

### **5.06 Property Insurance**

**A.** Unless otherwise provided in the Supplementary Conditions, DESIGN-BUILDER shall purchase and maintain property insurance on the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws or Regulations). This insurance shall:

1. include the interests of CITY, DESIGN-BUILDER, Subcontractors, and any other persons or entities identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;
2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss 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, extended coverage, theft, vandalism and malicious mischief, earthquake, tornado, collapse, debris removal, demolition occasioned by enforcement of Laws or Regulations, water damage, damage caused by frost and freezing, and acts of God;
3. be maintained in effect until final payment is made unless otherwise agreed to in writing by CITY with thirty (30) days written notice to each other additional insured to whom a certificate of insurance has been issued.

**B.** CITY shall not be responsible for purchasing and maintaining any property insurance to protect the interests of DESIGN-BUILDER, Subcontractors or others involved in the Work to the extent of any deductible amounts. The risk of loss within the deductible amounts will be borne by DESIGN-BUILDER, Subcontractor or others suffering any such loss and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

### **5.07 Waiver of Rights**

**A.** CITY and DESIGN-BUILDER intend that all policies purchased in accordance with Paragraphs 5.04 and 5.06 will protect CITY, DESIGN-BUILDER, CITY's Consultants, Subcontractors, and all other persons or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds in such policies and will provide primary coverage for all losses and damages caused by the perils covered thereby. All such policies 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 of the insureds or additional insureds thereunder. CITY and DESIGN-BUILDER waive all rights against each other and their respective officers, directors,

partners, employees and agents for all losses and damages caused by, arising out of or resulting from any of the perils covered by such policies and any other property insurance applicable to the Work, but only to the extent of insurance coverage; and, in addition, waive all such rights against CITY, Consultants, Subcontractors, and all other persons or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of any and each of them) under such policies for losses and damages so caused and covered by insurance. 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 CITY as trustee or otherwise payable under any policy so issued. None of the above waivers shall apply if specifically in conflict with Laws and Regulations.

#### **5.08 Receipt and Application of Insurance Proceeds**

**A.** Any insured loss under the property insurance will be adjusted with CITY and made payable to CITY as fiduciary for the insureds, as their interests may appear, subject to the requirements of any indentures of indebtedness entered into by CITY.

**B.** CITY as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object to CITY's exercise of this power in writing within fifteen (15) days after the occurrence of loss. If such objection is made, CITY as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, CITY as fiduciary shall adjust and settle the loss with the insurers.

#### **5.09 Partial Utilization - Property Insurance**

**A.** If CITY finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work; provided that no such use or occupancy shall commence before the insurers providing the property insurance have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

### **ARTICLE 6 DESIGN-BUILDER'S SERVICES AND RESPONSIBILITIES**

#### **6.01 General Requirements**

**A. Project Manager and Lead Architect.** The Design-Build Project Manager and the Lead Architect shall be reasonably available to CITY's Representative and shall have the necessary expertise and experience required to supervise the Work. The Design-Build Project Manager and the Lead Architect shall communicate regularly with CITY's Representative. The Design-Build Project Manager, the Lead Architect, and any of the other Key Personnel identified in the Technical Approach Submittal portion of DESIGN-BUILDER's Bid may be removed or replaced only with the prior written consent of CITY.

**B. Pre-Commencement Meeting.** The parties will meet within ten (10) days after CITY's execution of the Contract to discuss issues affecting the administration of the Work and to implement the necessary procedures, including those relating to schedules, submittals, and payment, to facilitate the ability of the parties to perform their obligations under the Contract Documents.

**C. List of Subcontractors.** DESIGN-BUILDER shall submit required information for all Subcontractors on Form 01290.09 - Subcontractor and Major Material Suppliers List, provided in these Contract Documents, prior to Subcontractor beginning Work at the Site. No acceptance by CITY of any Subcontractor or Sub-Subcontractor shall relieve DESIGN-BUILDER of its responsibility for scheduling and coordinating the Work of all Subcontractors and Sub-Subcontractors, nor shall it relieve DESIGN-BUILDER of its complete and exclusive responsibility and liability for all acts and omissions of any Subcontractor or Sub-Subcontractor, nor shall it result in any waiver of CITY's right to reject defective or nonconforming Work.

## **6.02 Professional Design Services**

**A.** DESIGN-BUILDER shall, consistent with applicable Missouri licensing laws, perform or furnish, through the DOR and any Design Subconsultants, the necessary architectural, engineering, and other professional design services and the labor, materials, supervision, equipment, computers, documents, and other items and services necessary for the preparation of the required drawings, specifications, and other design information and submittals to permit DESIGN-BUILDER to complete the Work consistent with CITY's Project Design and Construction Criteria, the Contract Documents, and Legal Requirements. DESIGN-BUILDER acknowledges its responsibility to CITY for the proper performance of the Work by the DOR and Design Subconsultants and its responsibility for any of their acts or omissions in connection with the Work, and acknowledges that such subcontracting shall in no way relieve DESIGN-BUILDER of its obligations and liabilities under the Contract Documents and Legal Requirements. Nothing in the Contract Documents is intended or deemed to create any legal or contractual relationship between CITY and any Design Subconsultant, or between CITY and the DOR (unless the DOR is the DESIGN-BUILDER under contract with CITY), including, but not limited to, any third-party beneficiary rights, and a provision to such effect shall be inserted into all agreements between DESIGN-BUILDER and its Design Subconsultants and DOR (if the DOR is not the DESIGN-BUILDER under contract with CITY).

## **6.03 Design Standards; Seals and Endorsements**

**A. Design Standards.** Except as otherwise directed in writing by CITY, DESIGN-BUILDER and the DOR shall use and implement in the performance of professional design services under the Contract, all applicable design standards required by federal, state, and local laws or codes or such standards as are recognized and used in the industry. In the development of any design under the Contract, DESIGN-BUILDER and the DOR shall comply with the Contract Documents and Legal Requirements, including, without limitation, all applicable provisions of the Americans with Disabilities Act, 42 U.S.C. Section 12101 et seq., as well as 28 C.F.R. Parts 35 and 36 and 29 C.F.R. Part 1630, and CITY's Buy American policy, all as may be amended from time to time. DESIGN-BUILDER and the DOR shall notify and explain to CITY any applicable exceptions under these acts or provisions.

**B. Seals and Endorsements.** The DOR shall affix its seal to and endorse all drawings, plans, and specifications, or estimates, and engineering data prepared by the DOR under the Contract. All Design Subconsultants shall similarly affix their seals to and endorse their respective drawings, plans, and specifications, or estimates, and engineering data prepared for the Project.

**C. Correction of Errors.** DESIGN-BUILDER and the DOR shall monitor for quality

assurance purposes all design services performed under the Contract, and shall immediately revise and correct the design drawings and plans at their own expense, without adjustment to the Contract Price and/or Contract Time(s), any act, omission, error, or oversight in the performance of such professional design services and the associated construction.

#### **6.04 Standard of Care for Professional Design Services**

**A.** The standard of care for all professional design services performed as part of the Work shall be the care and skill ordinarily exercised by members of the same design profession practicing under substantially similar conditions at the same time and locality of the Project, or as otherwise provided by Missouri law. Notwithstanding the preceding sentence, DESIGN-BUILDER shall design and construct the Project in such a manner that the Project and all of its components are functional and operational and in compliance with CITY's Project Design and Construction Criteria, Legal Requirements in effect as of the date of the Contract, and any other specific performance standards the parties may agree upon for any aspect of the Project.

#### **6.05 Progress Schedule**

**A.** DESIGN-BUILDER shall adhere to the progress schedule established in accordance with Article 2 as it may be adjusted from time to time as provided below:

1. DESIGN-BUILDER shall provide, at least once every thirty (30) calendar days, updated information on the project schedule, including thirty (30) day look ahead schedules, projected variances per event category and per Subcontractor, identification of all variances and calculation of the number of Days difference between the as-built critical path and the project schedule critical path

2. DESIGN-BUILDER shall, with each application for payment, provide completed monthly updated status report for the previous month on the project schedule and updated information indicating as-built and as-planned conditions. The updated information on the project schedule shall not modify any Milestone dates in the project schedule that CITY has previously approved. The updated information required is a condition precedent to payment pursuant to paragraph 14.02 and shall include at a minimum:

a. a concise statement of the outlook for meeting project schedule dates and the reasons for any change in outlook from the previous report;

b. a review of any significant technical problems encountered during the month;

c. an explanation of any corrective action taken or proposed; and

d. a summary of any Claims anticipated by DESIGN-BUILDER with respect to the Work, including the anticipated costs and schedule impacts of any such Claims.

#### **6.06 Recovery Schedules**

**A.** If the DESIGN-BUILDER should:

1. fail, refuse or neglect to supply a sufficient number of workers or to deliver the materials or equipment with such promptness as to prevent the delay in the progress of the Work;

2. fail in any respect to commence and diligently prosecute the Work in

accordance with the approved baseline project schedule in order to achieve substantial completion;

3. fail to commence, prosecute, finish, deliver or install the different portions of the Work on time as specified in the approved baseline project schedule; or
4. fail in the performance of any of the material covenants of the Contract Documents;

CITY shall have the right to direct the DESIGN-BUILDER, upon seven (7) calendar days notice, to prepare a written recovery plan, for CITY's approval, to accelerate the Work in order to conform to the approved baseline project schedule, including, without limitation, providing additional labor or expediting delivery of materials, performing overtime or re-sequencing the Work without adjustments to the Contract value. Upon CITY's approval of the recovery plan, DESIGN-BUILDER shall accelerate the Work in accordance with the plan.

**B.** Proposed recovery schedules shall be submitted to the CITY as a separate project plan for review and approval by CITY prior to incorporation into the approved baseline schedule. The recovery schedule shall be submitted in a format compatible with the baseline schedule format. Each proposed revision shall be submitted as a separate schedule, with the following minimum requirements:

1. A critical path method diagram showing revised and affected activities or Milestones.
2. An activity report for all revised and affected activities or Milestones.

**C.** Upon acceptance of the recovery schedule by CITY, data shall be added or revised for all new or revised activities and incorporated into the approved baseline project schedule.

## **6.07 Detailed Design Services**

**A. Interim Design Submissions.** At the meeting contemplated by Section 6.07.B of these General Conditions of Contract, CITY and DESIGN-BUILDER shall, consistent with any applicable provision of the Contract Documents, agree upon any interim design submissions that CITY may wish to review, which interim design submissions may include design criteria, drawings, diagrams, and specifications setting forth the Project requirements.

**B. Design Review Meetings.** On or about the time of scheduled design submissions, DESIGN-BUILDER's Project Manager and Lead Architect shall convene design review meetings with CITY to confer about the submissions. At the meetings, DESIGN-BUILDER shall identify, among other things, the evolution of the design and any significant changes or deviations from CITY's Project Design and Construction Criteria or the Contract Documents, or, if applicable, previously submitted design submissions. In the event DESIGN-BUILDER believes that any changes requested by CITY at such meetings are inconsistent with CITY's Project Design and Construction Criteria or earlier approvals such that DESIGN-BUILDER's compliance with same may have an adverse impact on the Contract Price and/or the Contract Time(s), DESIGN-BUILDER shall submit its written notice to CITY specifying such impact within seven (7) days after such meeting, or DESIGN-BUILDER shall be deemed to have waived any claim for adjustment to the Contract Price and/or the Contract Time(s) arising out of such meeting or request.



**C. Approval of Interim Design Submissions.** Following each design review meeting, DESIGN-BUILDER shall prepare and maintain meeting minutes and shall provide copies to all attendees for review. CITY shall review and approve the interim design submissions in a time that is consistent with the reasonable turnaround times set forth in DESIGN-BUILDER's approved schedule. Any such review and approval by CITY shall be only for purposes of determining the interim design submissions' apparent general consistency with CITY's Project Design and Construction Criteria, and shall not relieve DESIGN-BUILDER from any responsibility or liability for its complete and exclusive control and responsibility for providing complete and accurate design and construction services as required to achieve CITY's objectives, including, without limitation, the use, operation, and maintenance of the Project in conformance with CITY's Project Design and Construction Criteria, the Contract Documents, Legal Requirements, and applicable guidelines, requirements, and standards.

**D. Construction Documents.** DESIGN-BUILDER shall submit to CITY those Construction Documents consisting of drawings and specifications that describe and set forth in detail the requirements for construction of the Work. The Construction Documents shall be consistent with the latest set of interim design submissions; as such submissions may have been modified in a design review meeting and approved by CITY. The parties shall have a design review meeting to discuss, and CITY shall review and approve, the Construction Documents in accordance with the procedures and consistent with the purposes set forth in Sections 6.07.B. and 6.07.C. above and Section 6.07.E. below. Upon CITY's issuance of the Construction Notice to Proceed, DESIGN-BUILDER shall proceed with construction in accordance with the approved Construction Documents and shall submit to CITY, prior to commencement of construction, the number of copies of the approved Construction Documents, in the required form, as set forth in the Supplementary Conditions.

**E. Approval of Construction Documents.** CITY's review and approval of interim design submissions and the Construction Documents is for the purpose of mutually establishing a conformed set of Contract Documents compatible with the requirements of CITY's Project Design and Construction Criteria. Neither CITY's review and approval of any interim design submissions nor CITY's review and approval of the Construction Documents shall be deemed to transfer from DESIGN-BUILDER to CITY any of DESIGN-BUILDER's exclusive responsibility, control, and liability for the design and construction required under the Contract Documents.

**F. Design Packages.** To the extent not prohibited by the Contract Documents or Legal Requirements and with CITY's written approval, DESIGN-BUILDER may prepare interim design submissions and Construction Documents for a portion of the Work to permit construction to proceed on that portion of the Work prior to completion of the Construction Documents for the entire Work.

## **6.08 Legal Requirements**

**A. General.** DESIGN-BUILDER shall perform the Work in accordance with the Contract Documents and Legal Requirements, and shall provide all notices applicable to the Work as required by the Contract Documents and the Legal Requirements

**B. Changes in Legal Requirements.** The Contract Price and/or Contract Time(s) may be equitably adjusted to compensate DESIGN-BUILDER for the effects of any changes in Legal Requirements enacted after CITY's execution of the Contract that affect the performance of the Work. Such effects may include, without limitation,

revisions DESIGN-BUILDER is required to make to the Construction Documents because of changes in Legal Requirements.

**C. Americans with Disabilities Act.** DESIGN-BUILDER agrees to comply, during the course of this Contract, with all provisions of the Americans with Disabilities Act, 42 U.S.C. Sec. 12101 et seq., as well as 28 C.F.R. Parts 35 and 36 and 29 C.F.R. Part 1630, as applicable and as amended from time to time.

**D. Minority and Women's Business Enterprises.** CITY is committed to ensuring that minority business enterprises (MBE) and women's business enterprises (WBE) participate to the maximum extent possible in the performance of CITY contracts. DESIGN-BUILDER shall comply with all requirements of CITY's Minority and Women's Business Enterprise Program as enacted in CITY's Code, Sections 38-84 through 38-100.4 and as hereinafter amended. DESIGN-BUILDER shall achieve the MBE/WBE participation goals set forth in DESIGN-BUILDER's Construction Contractor Utilization Plan/Request for Waiver (CITY's HRD Form 8-DB). DESIGN-BUILDER's compliance with this provision is a material part of this Contract.

**E. Audit.** The City Auditor, the CITY's Internal Auditor, the CITY's Director of Human Relations, and the CITY Department administering this Contract shall have the right to audit this Contract and all books, documents, and records relating thereto.

1. DESIGN-BUILDER shall maintain all of its books, documents, and records relating to this Contract during the Contract period and for three (3) years after the date of final payment or earlier termination of the Contract.

2. DESIGN-BUILDER shall make such books, documents, and records available to the City Auditor, the CITY's Internal Auditor, the CITY's Director of Human Relations, and the CITY Department administering this Contract, within ten (10) days after written request.

**F. Prevailing Wage.**

1. DESIGN-BUILDER shall comply and require its Subcontractors to comply with;

a. sections 290.210 to 290.340, RSMO the State of Missouri Prevailing Wage Law (the "Law"); and

b. 8 CSR 30-3.010 to 8 CSR 30-3.060, the Prevailing Wage Law Rules (the "Rules"); and

c. the Annual Wage Order (Wage Order) issued by the State of Missouri's Department of Labor and Industrial Relations; and

d. any applicable Annual Incremental Wage Increase (Wage Increase) to the Annual Wage Order.

2. The Law, Rules, Annual Wage Order and any Wage Increase are incorporated into and made part hereof this Contract and shall be collectively referred to in this Section as the "Prevailing Wage Requirements."

3. DESIGN-BUILDER shall pay and require its Subcontractors to pay to all workers performing work under this Contract not less than the prevailing hourly rate of wages for the class or type of work performed by the worker in accordance with the Law, Rules, Wage Order and any applicable Wage Increase. DESIGN-BUILDER shall take whatever steps are necessary to insure that the prevailing

hourly wage rates are paid and that all workers for DESIGN-BUILDER and each of its Subcontractors are paid for the class or type of work performed by the worker in accordance with the Prevailing Wage Requirements. If DESIGN-BUILDER shall fail to start to perform DESIGN-BUILDER's obligations under the Contract Documents within sixty (60) days from the date on which the Contract Times commenced to run, as indicated in the Notice to Proceed, DESIGN-BUILDER and each of its subcontractors shall be obligated to pay all workers in accordance with any new Wage Order, as subsequently amended by any applicable Wage Increase, issued by the Department of Labor and Industrial Relations within the aforementioned sixty (60) day period. The new Wage Order and any applicable Wage Increase shall govern notwithstanding the fact that the Wage Order being replaced might be physically attached or incorporated in the Contract Documents.

4. Prior to each of its Subcontractors beginning Work on the Site, DESIGN-BUILDER shall require each Subcontractor to complete CITY's Form 00490 entitled "Pre-contract Certification" that sets forth the Subcontractor's prevailing wage and tax compliance history for the two (2) years prior to the bid. DESIGN-BUILDER shall retain one (1) year and make the Pre-contract Certifications available to CITY within five (5) days after written request.

5. DESIGN-BUILDER shall keep and require each of its Subcontractors engaged in the construction of public works in performance of the Contract to keep full and accurate records on CITY's:

a. "Certified Payroll Report" Form indicating the worker's name, address, social security number, occupation(s) and craft(s) of every worker employed in connection with the public work together with the number of hours worked by each worker and the actual wages paid in connection with the Project; and

b. "Daily Labor Force Report" Form indicating the worker's name, occupational title or classification group & skill and the workers' hours. CITY shall furnish blank copies of the Daily Labor Force Report Form to DESIGN-BUILDER for its use and for distribution to Subcontractors; and

c. "Payroll Certification" Form. DESIGN-BUILDER shall prepare and shall require each Subcontractor to prepare a "Payroll Certification" Form to accompany the Certified Payroll Report. The Payroll Certification must be signed by the employee or agent who pays or supervises the payment of the workers employed under the Contract for the DESIGN-BUILDER and each Subcontractor.

d. Copies of CITY's "Certified Payroll Report" form, the Daily Labor Force Report and Payroll Certification Form are included in the Project Manual and are collectively referred to in this Section as the "Records."

6. DESIGN-BUILDER shall submit its and its Subcontractors Daily Labor Force Reports to CITY each day. DESIGN-BUILDER shall make all of DESIGN-BUILDER's and Subcontractors' Records open to inspection by any authorized representatives of OWNER and the Missouri Department of Labor and Industrial Relations at any reasonable time and as often as they may be necessary and such Records shall not be destroyed or removed from the State of Missouri for a period of one (1) year following the completion of the public work in connection with which the Records are made. DESIGN-BUILDER shall have its and its Subcontractors Certified Payroll Reports and Payroll Certifications available at the DESIGN-

BUILDER's office and shall provide the Records to the City electronically at City's sole discretion. In addition, all Records shall be considered a public record and DESIGN-BUILDER shall provide the Records to the CITY in the format required by the CITY within three (3) working days of any request by CITY at the DESIGN-BUILDER's cost. CITY, in its sole discretion, may require DESIGN-BUILDER to send any of the Records directly to the person who requested the Record at DESIGN-BUILDER's expense.

7. GENERAL DESIGN-BUILDER shall post and keep posted a clearly legible statement of all prevailing hourly wage rates to be paid to all workers employed by DESIGN-BUILDER and each of its Subcontractors in the performance of this Contract in a prominent and easily accessible place at the Site of the Work by all workers.

8. If the Contract Price exceeds \$250,000.00, DESIGN-BUILDER shall and shall require each Subcontractor engaged in any construction of public works to have its name, acceptable abbreviation or recognizable logo and the name of the city and state of the mailing address of the principal office of the company, on each motor vehicle and motorized self-propelled piece of equipment which is used in connection with the Project during the time the DESIGN-BUILDER or Subcontractor is engaged on the project. The sign shall be legible from a distance of twenty (20') feet, but the size of the lettering need not be larger than two (2") inches. In cases where equipment is leased or where affixing a legible sign to the equipment is impractical, the DESIGN-BUILDER may place a temporary stationary sign, with the information required pursuant to this section, at the main entrance of the Project in place of affixing the required information on the equipment so long as such sign is not in violation of any state or federal statute, rule or regulation. Motor vehicles which are required to have similar information affixed thereto pursuant to requirements of a regulatory agency of the state or federal government are exempt from the provisions of this subsection.

9. DESIGN-BUILDER must correct any errors in DESIGN-BUILDER's or any Subcontractors' Records, or DESIGN-BUILDER's or any Subcontractors' violations of the Law, Rules, Annual Wage Order and any Wage Increase within fourteen (14) calendar days after notice from CITY.

10. DESIGN-BUILDER shall and shall require its Subcontractors to cooperate with the CITY and the Department of Labor and Industrial Relations in the enforcement of this Section, the Law, Rules, Annual Wage Order and any Wage Increase. DESIGN-BUILDER shall and shall require its Subcontractors to permit CITY and the Department of Labor and Industrial Relations to interview any and all workers during working hours on the Project at DESIGN-BUILDER's sole cost and expense.

11. DESIGN-BUILDER shall file with CITY, upon completion of the Project and prior to final payment therefore, affidavits from DESIGN-BUILDER and each of its Subcontractors, stating that each has fully complied with the provisions and requirements of the Missouri Prevailing Wage Law. CITY shall not make final payment until the affidavits, in proper form and order, from DESIGN-BUILDER and each of its Subcontractors, are filed by DESIGN-BUILDER.

12. DESIGN-BUILDER shall forfeit as a statutory penalty to the CITY one hundred dollars (\$100.00) for each worker employed, for each calendar day, or portion thereof, such worker is paid less than the prevailing hourly rates for any work

done under this Contract, by DESIGN-BUILDER or by any of DESIGN-BUILDER's Subcontractors. If DESIGN-BUILDER or any of its Subcontractors have violated any section(s) of 290.210 to 290.340, RSMo, in the course of the execution of the Contract, CITY shall when making payments to the DESIGN-BUILDER becoming due under this Contract, withhold and retain therefrom all sums and amounts due and owing as a result of any violation of sections 290.210 to 290.340, RSMo.

**G. Prevailing Wage Damages.** DESIGN-BUILDER acknowledges and agrees that, based on the experience of CITY, violations of the Missouri Prevailing Wage Act, whether by DESIGN-BUILDER or its Subcontractors, commonly result in additional costs to CITY. DESIGN-BUILDER agrees that additional costs to CITY for any particular violation are difficult to establish and include but are not limited to: costs of construction delays, additional work for CITY, additional interest expenses, investigations, and the cost of establishing and maintaining a special division working under the City Manager to monitor prevailing wage compliance.

1. In the event of the failure by DESIGN-BUILDER or any of its Subcontractors to pay wages as provided in the Missouri Prevailing Wage Act, CITY shall be entitled to deduct from the Contract Price, and shall retain as liquidated damages, one hundred dollars (\$100.00) per day, per worker who is paid less than the prevailing hourly rate of wages, to approximate the additional costs. The sum shall be deducted, paid or owed whether or not the Contract Times have expired.

2. CITY shall give written notice to DESIGN-BUILDER setting forth the workers who have been underpaid, the amount of the statutory penalty and the amount of the liquidated damages as provided for in this Subparagraph **G.** DESIGN-BUILDER shall have fourteen (14) calendar days to respond, which time may be extended by CITY upon written request. If DESIGN-BUILDER fails to respond within the specified time, the CITY's original notice shall be deemed final. If DESIGN-BUILDER responds to CITY's notice, CITY will furnish DESIGN-BUILDER a final decision in writing within five (5) days of completing any investigation.

**H. Missouri Secretary of State Business Entity Registration.** DESIGN-BUILDER shall obtain, from all Subcontractors and Sub-Subcontractors for the Project, a copy of their current certificate of good standing or fictitious name registration from the Missouri Secretary of State before they begin work on the Site. DESIGN-BUILDER shall retain such documents in its files and shall make them available to CITY within ten (10) days after written request.

**I. Tropical Hardwoods.** The provisions of Code Section 2-1872, restricting the use of tropical hardwoods, shall apply to this Contract.

**J. Preference for Missouri Products.** Pursuant to Section 71.140, RSMo, preference shall be given to materials, products, supplies, and all other articles produced, manufactured, made, or grown within the State of Missouri.

**K. Open Excavations.** DESIGN-BUILDER shall comply, and shall cause each of its Subcontractors to comply, with Legal Requirements and with the following specific requirements relating to open excavations; provided, however, that inclusion of these requirements in the Contract Documents shall in no event result in CITY's responsibility or liability for any safety programs or precautions in connection with the Work, the Site, or the Project, as such responsibility and liability are exclusively those of DESIGN-BUILDER.

1. **Protecting Excavations.** DESIGN-BUILDER shall restore all required

excavations to the level of the adjacent surfaces as soon as practicable. Unsupervised open excavations on public properties are discouraged at all times. If DESIGN-BUILDER, in performance of the Work, makes or causes to be made any excavation in, upon, under, through, or adjoining any street, sidewalk, alley, park, boulevard, parkway, or any other public properties, and leaves any part or portion thereof open, DESIGN-BUILDER shall provide effective protection for the public.

**2. Securing Excavations.** DESIGN-BUILDER shall protect and secure all excavations in roadways in compliance with existing federal, state, and local codes and standards, including, but not limited to, the most current edition of the Manual of Uniform Traffic Control Devices. DESIGN-BUILDER shall protect and secure all unsupervised excavations that are not within roadways, either by covering or fencing, in compliance with the following:

**a. Covering.** A protective cover that can sustain the weight of persons or objects placed upon it may be installed over an unsupervised excavation. The cover shall be secured to the ground to prevent movement. Protective covers shall have no opening(s) or protuberance(s) of sufficient size to cause or allow a fall and/or injury. Advance warning devices shall be installed as necessary.

**b. Fencing.** Fencing to prevent entry may be installed surrounding an unsupervised excavation that is not protectively covered in its entirety. The fencing shall be a minimum of 42" in height. The fencing shall be constructed in such a manner that it is adequately secured and will remain upright at all times under normal Site conditions.

**c. Inspections.** All protective coverings and fences over and around excavations shall be inspected at least daily to assure integrity. Protective coverings and/or fences in heavily trafficked areas shall be inspected more often as necessary.

**L. Notification of Utilities.** DESIGN-BUILDER shall adhere to the provisions of Sections 319.010 et seq., RSMo, which provide that a person or firm making an excavation in any public street, road or alley, right of way dedicated to public use, utility easement of record, or within any private street or private property may do so only after giving notice to, and obtaining information from, owners of Underground Facilities. Missouri's 24-hour toll-free accident-prevention hotline number is 1-800-344-7483 (1-800-DIG-RITE).

**M. Missouri Sales Tax Exemption.** CITY is a Missouri exempt entity pursuant to Section 144.062, RSMo, and tangible personal property to be incorporated or consumed in the construction of the Project may be purchased without the payment of sales tax. CITY shall furnish to DESIGN-BUILDER a Missouri Project Exemption Certificate for Sales Tax at the time of issuance of the Notice to Proceed.

**N. Clean Air Act and Clean Water Act.** DESIGN-BUILDER shall comply with requirements of the Clean Air Act (42 U.S.C. 7401 et seq.); Clean Water Act (33 U.S.C. 1251 et seq.), Missouri Clean Water Law (Chapter 644 RSMo), Code of Federal regulations (Title 40: Protection of Environment, Title 33: Navigation and Navigable Waters) and the rules of the Missouri Code of State Regulations (CSR Title 10).

**O. OSHA 10-Hour Training Requirement.** DESIGN-BUILDER and any subcontractor working under this Contract shall require every employee on the Site to complete a ten-hour construction safety program which meets the requirements of Section 292.675, RSMo, except for those employees who shall have previously completed the required program and hold documentation to that effect. DESIGN-BUILDER shall remove or require the removal of any person from the Site who is subject to this requirement and who does not complete or is unable to produce documentation of their successful completion of the required program within the time limitations prescribed by Section 292.675, RSMo. DESIGN-BUILDER shall forfeit the sum of two thousand five hundred dollars (\$2,500.00), in addition to one hundred dollars (\$100.00) per employee each calendar day, or portion thereof, the employee(s) shall continue to be employed without having completed the required program within the time limitations prescribed by Section 292.675, RSMo. CITY shall be entitled to withhold and retain any amounts due and owing hereunder when making payment to DESIGN-BUILDER.

**P. Affirmative Action.** If the Contract Price exceeds \$300,000.00 and DESIGN-BUILDER employs fifty (50) or more people, DESIGN-BUILDER shall comply with City's Affirmative Action requirements in accordance with the provisions of Chapter 38 of City's Code, the rules and regulations relating to those sections, and any additions or amendments thereto. DESIGN-BUILDER shall not discriminate against any employee or applicant for employment because of race, color, sex, religion, national origin or ancestry, disability, sexual orientation, gender identity or age in a manner prohibited by Chapter 38 of City's Code.

DESIGN-BUILDER shall:

1. Submit, in print or electronic format, a copy of DESIGN-BUILDER'S current certificate of compliance to the City's Human Relations Department (HRD) prior to receiving the first payment under the contract, unless a copy has already been submitted to HRD at any point within the previous two calendar years. If, and only if, DESIGN-BUILDER does not possess a current certification of compliance, DESIGN-BUILDER shall submit, in print or electronic format, a copy of its affirmative action program to HRD prior to receiving the first payment under the contract, unless a copy has already been submitted to HRD at any point within the previous two calendar years.

2. Require any Subcontractor awarded a subcontract exceeding \$300,000.00 to affirm that Subcontractor has an affirmative action program in place and will maintain the affirmative action program in place for the duration of the subcontract.

3. Obtain from any Subcontractor awarded a subcontract exceeding \$300,000.00 a copy of the Subcontractor's current certificate of compliance and tender a copy of the same, in print or electronic format, to HRD within thirty (30) days from the date the subcontract is executed. If, and only if, Subcontractor does not possess a current certificate of compliance, DESIGN-BUILDER shall obtain a copy of the Subcontractor's affirmative action program and tender a copy of the same, in print or electronic format, to HRD within thirty (30) days from the date the subcontract is executed.

City has the right to take action as directed by City's Human Relations Department to enforce this provision. If DESIGN-BUILDER fails, refuses or neglects to comply with the provisions of Chapter 38 of City's Code, then such failure shall be deemed a total breach of this Contract and this Contract may be terminated, canceled or suspended, in whole or in part, and DESIGN-BUILDER may be declared ineligible for any further contracts funded by City for a period of one (1) year. This is a material term of this Contract.

**Q. Contract Information Management System.** If applicable, DESIGN-BUILDER shall comply with CITY's Contract Information Management System requirements. DESIGN-BUILDER shall use CITY's Internet web based Contract Information Management System/Project Management Communications Tool provided by CITY, and protocols included in that software during the term of this Contract. DESIGN-BUILDER shall maintain user applications to CITY's provided system for all personnel, subcontractors or suppliers as applicable and shall require subcontractors/subconsultants to maintain same.

#### **6.09 Government Approvals and Permits**

**A. DESIGN-BUILDER's Responsibility.** DESIGN-BUILDER, at its own expense, shall secure all occupational and professional licenses; shall pay all Code application costs, Code review costs, governmental charges, and inspection fees; and shall secure from public or private sources or from any government or quasi-government entity having jurisdiction over the Project all necessary permits, approvals, and licenses required for the prosecution of the Work and necessary for the fulfillment of DESIGN-BUILDER's obligations under the Contract Documents.

**B.** DESIGN-BUILDER, at its own expense, shall comply with all Federal, State and local laws and regulations, including, but not limited to the Missouri Clean Water Law (Chapter 644 RSMo) together with any accompanying regulation(s) contained in the Missouri Code of State Regulations (CSR Title 10), as well as any implementing permits, together with any CITY Provisions during the life of this Contract including but not limited to:

1. Approvals and permits as required for construction or land disturbance activities.
2. Compliance with the State of Missouri – Department of Natural Resources (“MDNR”) Missouri State Operating Permit (“Land Disturbance Permit”), MO-R100006 for all construction or land disturbance activity.
3. Development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).
  - a. DESIGN-BUILDER shall not commence land disturbance activity until the initial SWPPP has been finalized.
  - b. Preparation and submittal of all applications, documentation and exhibits required to obtain MDNR approvals for uninterrupted Work at the Site.
  - c. Amending/Updating SWPPP.
  - d. Site Inspections and submittal of Inspection Reports
  - e. Proper Operation and Maintenance to achieve compliance with the terms of the Permit.
  - f. Maintenance of required records in accordance with MDNR requirements and requirements included in Article 6 of these Contract Documents.
4. In addition to requirements of Article 6, DESIGN-BUILDER shall also provide record access to Missouri Department of Natural Resources (MDNR).
5. No additional Contract time will be granted to obtain approvals or permits or for coordination with that agency.



**C. Subcontractors' Licenses.** Before Subcontractors begin Work at the Site, DESIGN-BUILDER shall obtain copies of all licenses required of such Subcontractors by these Contract Documents. DESIGN-BUILDER shall retain such evidence in its files and make it available to CITY within ten (10) days after written request.

**D. No Release from Responsibility.** No review, inspection, or approval of any of the Work by any government or quasi-government entity having jurisdiction over the Project shall relieve DESIGN-BUILDER of its exclusive responsibility and liability for the performance of its obligations in accordance with the Contract Documents and Legal Requirements.

## **6.10 Construction Phase Services**

**A. DESIGN-BUILDER's Responsibility.** Unless otherwise provided in the Contract Documents to be the responsibility of CITY or a separate contractor under CITY's control, DESIGN-BUILDER shall provide through itself or its Subcontractors the necessary supervision, labor, inspection, testing, start-up, material, equipment, machinery, temporary utilities, other temporary facilities, and all other items or services necessary to permit DESIGN-BUILDER to perform and complete the construction of the Project consistent with the Contract Documents and Legal Requirements.

**B. DESIGN-BUILDER's Skill and Control.** DESIGN-BUILDER shall perform all construction activities efficiently, in a workmanlike manner, and with the requisite expertise, skill, and competence to satisfy the Contract Documents and Legal Requirements. DESIGN-BUILDER shall at all times exercise complete and exclusive control over the means, methods, sequences, and techniques of construction, and all safety precautions and programs in connection with the performance of the Work.

### **C. Uncovering Work**

**1. Work Covered Improperly.** If any Work (or the work of others at the Site) is covered contrary to the written request of CITY, DESIGN-BUILDER must uncover it at CITY's request for CITY's observation and replace it at DESIGN-BUILDER's expense.

**2. Work Covered Properly.** If CITY considers it necessary or advisable that covered Work be observed by CITY or be inspected or tested by others, DESIGN-BUILDER, at CITY's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as may be required, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

**a. Defective Work.** If it is found that such Work is defective, DESIGN-BUILDER shall pay all costs, losses, and damages (including, but not limited to, all fees and charges of contractors, engineers, architects, attorneys, and other professionals and all court or other dispute resolution costs) caused by, arising out of, or resulting from 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 CITY shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, CITY may make a Claim therefore.

**b. Non-Defective Work.** If, however, such Work is not found to be defective, DESIGN-BUILDER shall be allowed an increase in the Contract Price or an extension of the Contract Time(s) (or Milestones), 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, DESIGN-BUILDER may make a Claim therefore.

#### **D. Subcontractors**

**1. CITY's Approval.** DESIGN-BUILDER shall engage only Subcontractors and Sub-subcontractors who are duly licensed and qualified to perform the Work consistent with the Contract Documents and Legal Requirements. Upon execution of the Contract and at such later times as CITY may request, DESIGN-BUILDER shall furnish, in writing, information about DESIGN-BUILDER's proposed Subcontractors and Sub-subcontractors. CITY shall promptly provide in writing any reasonable objections it may have to any such Subcontractor or Sub-subcontractor, in which case DESIGN-BUILDER shall submit an acceptable replacement. DESIGN-BUILDER shall not contract with any Subcontractor or Sub-subcontractor to which CITY objects, provided that the Contract Price and/or Contract Time(s) shall be equitably adjusted to the extent CITY's objection actually impacts DESIGN-BUILDER's cost and/or time of performance. DESIGN-BUILDER shall not be required to contract with any Subcontractor or Sub-Subcontractor against whom DESIGN-BUILDER has reasonable objection. CITY's consent or failure to object to any Subcontractor or Sub-subcontractor shall neither constitute any waiver by CITY of any of its rights and remedies under the Contract Documents or Legal Requirements, nor relieve DESIGN-BUILDER of any of its duties, obligations, liabilities, or warranties under the Contract Documents or Legal Requirements.

**2. DESIGN-BUILDER's Subcontractors.** DESIGN-BUILDER acknowledges its responsibility to CITY for the proper performance of the Work by DESIGN-BUILDER's Subcontractors and Sub-subcontractors and its responsibility for any of their acts or omissions in connection with the Work, and acknowledges that such subcontracting shall in no way relieve DESIGN-BUILDER of its obligations and liabilities under the Contract Documents and Legal Requirements.

**3. Written Agreements.** All Work performed by any Subcontractor or Sub-Subcontractor shall be pursuant to a written agreement or purchase order that specifically binds such Subcontractor or Sub-Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of CITY, and that affords to DESIGN-BUILDER the same rights against such Subcontractors and Sub-subcontractors as the Contract Documents afford to CITY against DESIGN-BUILDER. Nothing in the Contract Documents is intended or shall be construed to create any legal or contractual relationship between CITY and any Subcontractor or Sub-Subcontractor, nor to confer any benefit from CITY upon any Subcontractor or Sub-Subcontractor, including but not limited to any third-party beneficiary rights, and a provision to such effect shall be inserted into all subcontracts and purchase orders between DESIGN-BUILDER and its Subcontractors and Sub-subcontractors.

**4. Contingent Assignment.** Each agreement and purchase order referenced in Section 6.10.D.3 above shall include an express assignment to CITY upon the conditions that (1) such assignment is effective only in the event of CITY's termination of the Contract for cause pursuant to Section 12.3 of these General Conditions of Contract, (2) such assignment is effective only with respect to those agreements and purchase orders CITY accepts in writing, and (3) such

assignment is subject to any prior rights of the surety obligated under the Bonds.

#### **E. Coordination**

**1. DESIGN-BUILDER's Forces.** DESIGN-BUILDER shall coordinate the activities of the DOR, the GC, all Design Subconsultants, all Subcontractors, and all Sub-subcontractors with respect to the Work. Such coordination shall include, but not be limited to, jobsite meetings involving all such Project participants, at dates and times mutually agreed upon in advance with CITY's Representative.

**2. CITY's Forces.** If CITY performs any work on the Project or at the Site with CITY's own forces or with separate contractors under CITY's control, DESIGN-BUILDER shall reasonably cooperate and coordinate its activities with those of such separate forces or contractors so that the Project can be completed in an orderly and coordinated manner without unreasonable disruption, delay, or damage to any party.

#### **F. Supervision and Superintendence**

1. DESIGN-BUILDER 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.

2. At all times during the progress of the Work, DESIGN-BUILDER shall assign a competent resident superintendent of the Work, who shall not be replaced without written request to and written approval by CITY except under extraordinary circumstances. The superintendent will be DESIGN-BUILDER's representative at the Site and shall have authority to act on behalf of DESIGN-BUILDER. All communications given to or received from the superintendent shall be binding on DESIGN-BUILDER.

#### **G. Services, Working Hours, Labor, Materials, and Equipment**

1. DESIGN-BUILDER shall provide competent, suitably qualified personnel to survey, layout, and construct the Work as required by the Contract Documents. DESIGN-BUILDER shall at all times maintain good discipline and order at the Site. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto. CITY's prior written approval shall be required in the event DESIGN-BUILDER intends to perform Work at the Site outside regular working hours.

2. Unless otherwise specified in the Contract Documents, DESIGN-BUILDER shall furnish 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 furnishing, performance, testing, start-up and completion of the Work.

3. All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees shall expressly run to the benefit of CITY. If required by CITY, DESIGN-BUILDER shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment. All materials and equipment shall be stored, applied, installed, connected, erected, used, cleaned,

and conditioned in accordance with the manufacturer's instructions except as may be otherwise provided in the Contract Documents.

## **H. Use of Site and Other Areas**

1. DESIGN-BUILDER shall confine its construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas identified in and permitted by the Contract Documents and other areas permitted by Legal Requirements. DESIGN-BUILDER shall not unreasonably encumber the Site and the other areas with construction equipment or other materials or equipment. DESIGN-BUILDER shall assume full responsibility for any damage to the Site or the other areas, or to the owner(s) or occupant(s) thereof, or of any adjacent land or areas, resulting from the performance of the Work.

2. Should any claim be made by any such owner(s) or occupant(s) because of the performance of the Work, DESIGN-BUILDER shall promptly resolve such claim. In case of a failure on the part of DESIGN-BUILDER to restore such property or to make good such damage or injuries, CITY may, upon forty-eight (48) hours' written notice to DESIGN-BUILDER, repair, rebuild, or otherwise restore such property as CITY may deem necessary, and the cost thereof will be deducted from any moneys due or which may become due to DESIGN-BUILDER under this Contract.

3. DESIGN-BUILDER shall, to the fullest extent permitted by Legal Requirements, defend, indemnify, and hold harmless CITY, its Consultant(s), and its or their officials, officers, directors, employees, and agents from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of contractors, engineers, architects, attorneys, and other professionals and all court or other dispute resolution costs) arising out of or resulting from any claim or action, legal or equitable, brought by any such owner(s) or occupant(s) against CITY or any other party indemnified hereunder to the extent caused by or based upon DESIGN-BUILDER's performance of the Work.

4. During the progress of the Work, DESIGN-BUILDER shall keep the Site and the other areas free from accumulations of waste materials, rubbish, and other debris resulting from the Work. DESIGN-BUILDER shall leave the Site clean and ready for utilization or occupancy by CITY at Substantial Completion of the Work. At the completion of the Work, DESIGN-BUILDER shall remove all waste materials, rubbish, and debris from the Site and the other areas, as well as all tools, appliances, construction equipment and machinery, and surplus materials. DESIGN-BUILDER shall restore to its pre-Work condition all property not designated for alteration by the Contract Documents.

DESIGN-BUILDER shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall DESIGN-BUILDER subject any part of the Site, the Work or adjacent property to stresses or pressures that will endanger it or them.

## **I. Emergencies**

1. In the event of emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, DESIGN-BUILDER, without special instruction or authorization from CITY, is obligated to act to prevent

threatened damage, injury, or loss. DESIGN-BUILDER shall give prompt written notice to CITY if DESIGN-BUILDER 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 CITY determines that a change in the Contract Documents is required because of the action taken by DESIGN-BUILDER in response to an emergency, a Work Change Directive or Change Order will be issued.

2. A change in the Contract Documents pursuant to Section 6.10.I will not be an automatic authorization of, nor a condition precedent to, entitlement to adjustment to the Contract Price and/or Contract Time(s). If CITY and DESIGN-BUILDER are unable to agree on entitlement to, or magnitude of, an equitable adjustment to the Contract Price and/or Contract Time(s), a Claim may be made therefore. However, neither CITY nor its Consultant(s) shall be liable to DESIGN-BUILDER for any costs, losses, or damages (including but not limited to all fees and charges of contractors, engineers, architects, attorneys, and other professionals and all court or other dispute resolution costs) sustained by DESIGN-BUILDER on or in connection with any other project or anticipated project.

#### **J. Access to the Work**

1. CITY, its Consultant(s), other CITY representatives and personnel, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and Work at reasonable times for their observation, inspection, and testing of the Work. DESIGN-BUILDER shall afford proper and safe conditions for such access and shall advise of DESIGN-BUILDER's Site safety procedures and programs so that such persons and entities may comport themselves therewith as may be applicable.

#### **K. Tests and Inspections**

1. DESIGN-BUILDER shall give to CITY's Representative timely notice of readiness of the Work for all required inspections, tests, or approvals, and DESIGN-BUILDER shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

2. If any Work (or the work of others at the Site) that is to be inspected, tested, or approved is covered by DESIGN-BUILDER without written approval required by Sections 6.10.K.4 or 6.10.A, it must, if requested by CITY's Representative, be uncovered for observation.

3. Uncovering Work as provided in Section 6.10.K.2 shall be at DESIGN-BUILDER's expense unless DESIGN-BUILDER gave timely notice to CITY's Representative of DESIGN-BUILDER's intention to cover the same and CITY's Representative failed to act with reasonable promptness in response to such notice.

4. If Legal Requirements of any public body (including CITY) 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, DESIGN-BUILDER shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish the required certificates of inspection or approval to CITY's Representative.

5. DESIGN-BUILDER shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for CITY's acceptance of materials or equipment to be incorporated into the Work, or acceptance of materials, mix designs, or equipment submitted for approval prior to DESIGN-BUILDER's purchase thereof for incorporation into the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to CITY.

6. CITY shall engage and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

- a. for inspections, tests or approvals covered by Sections 6.10.K.4 and 6.10.K.5;
- b. that costs incurred in connection with tests or inspections conducted pursuant to Section 6.10.K.2 shall be paid as provided in Section 6.10.K.3; and
- c. as otherwise specifically provided in the Contract Documents.

## **L. Clean Up**

**1. General.** DESIGN-BUILDER shall keep the Site, including adjacent land areas and roads, reasonably free from debris, trash, mud, and construction wastes to permit DESIGN-BUILDER to perform its construction services efficiently and safely, and without interfering with the use of adjacent land areas and roads.

**2. Regular Clean-Up Required.** On a regular basis agreeable to CITY, DESIGN-BUILDER shall remove from CITY's property and from adjacent land areas and roads, and shall legally dispose of, all waste, trash, mud, and debris generated as a result of the Work performed under this Contract.

**3. Disposal Records.** DESIGN-BUILDER shall maintain written records of disposal methods and disposal sites, including, without limitation, copies of dump receipts or other forms provided by licensed landfills or agreements with property owners on whose property such waste materials are placed. DESIGN-BUILDER shall make such disposal records available to CITY within ten (10) working days from the date of CITY's written request therefore.

**4. Substantial Completion.** Upon Substantial Completion of the Work, or a portion of the Work, DESIGN-BUILDER shall remove all debris, trash, mud, construction wastes, materials, equipment, machinery, and tools arising from the Work or applicable portions thereof and shall leave the area "broom clean," to permit CITY to use or occupy the Project or a portion of the Project for its intended use.

**5. CITY's Right to Clean Up.** If DESIGN-BUILDER fails to provide the clean-up of the Site as required by this Section 6.10.L, CITY, in its sole option, may have the required clean-up performed. All costs, losses, and damages (including but not limited to all fees and charges of contractors, engineers, architects, attorneys, and other professionals, and all court or other dispute resolution costs) caused by or resulting from such clean-up or other costs, losses, and damages incurred or sustained by CITY in exercising such rights and remedies will be charged

against DESIGN-BUILDER.

## **6.11 DESIGN-BUILDER's Responsibility for Project Safety**

**A. Exclusive Responsibility.** DESIGN-BUILDER recognizes the importance of performing the Work in a safe manner so as to prevent damage, injury, or loss to (i) all individuals at the Site, whether working or visiting; (ii) the Work, including materials and equipment incorporated into the Work or stored on-Site or off-Site; and (iii) all other property at the Site or adjacent thereto. DESIGN-BUILDER assumes complete and exclusive responsibility for implementing and monitoring all safety precautions and programs related to the performance of the Work. DESIGN-BUILDER's Safety Officer identified in the Technical Approach Submittal of DESIGN-BUILDER's Bid shall supervise the implementation and monitoring of all safety precautions and programs related to the Work. Unless otherwise required by the Contract Documents, DESIGN-BUILDER's Safety Officer shall be an individual stationed at the Site who may have responsibilities on the Project in addition to safety. The Safety Officer shall make routine daily inspections of the Site and shall hold weekly safety meetings with DESIGN-BUILDER's personnel, Subcontractors, and others as applicable. CITY may attend such meetings in its sole discretion, but CITY shall have no obligation to do so, and no responsibility or liability shall be imposed upon CITY for its attendance or failure to attend such meetings.

**B. Accident Reporting.** DESIGN-BUILDER and Subcontractors shall comply with Legal Requirements relating to safety, as well as any CITY-specific safety requirements set forth in the Contract Documents provided that such CITY-specific requirements do not violate any applicable Legal Requirements. DESIGN-BUILDER will immediately report in writing to CITY's Representative any safety-related injury, loss, damage, or accident arising from the Work and, to the extent mandated by Legal Requirements, to all government or quasi-government authorities having jurisdiction over safety-related matters involving the Project or the Work.

**C. Subcontractors' Responsibility.** DESIGN-BUILDER's responsibility for safety under this Section 6.9 and the Contract Documents and Legal Requirements is not intended in any way to relieve Subcontractors and Sub-Subcontractors of their own contractual and legal obligations and responsibility for (i) complying with Legal Requirements, including those related to health and safety matters; and (ii) taking all necessary measures to implement and monitor all safety precautions and programs to guard against injury, losses, damages, or accidents resulting from their performance of the Work.

## **6.12 DESIGN-BUILDER's Warranty**

A. DESIGN-BUILDER warrants to CITY that the Work, including all workmanship, materials, and equipment furnished as part of the Work, shall be new unless otherwise specified in the Contract Documents, of good quality, in conformance with the Contract Documents, and free of defects in materials and workmanship. DESIGN-BUILDER's warranty obligation excludes defects caused by abuse, alterations, or failure to maintain the Work by persons other than DESIGN-BUILDER or anyone for whose acts DESIGN-BUILDER may be liable. Nothing in this warranty is intended to limit any manufacturer's warranty providing CITY with greater warranty rights than set forth in this Section 6.12 or the Contract Documents. Upon Substantial Completion, DESIGN-BUILDER will provide CITY with all manufacturers' and products warranties associated with the Work, and shall provide assignments of such warranties to CITY if necessary.

## **6.13 DESIGN-BUILDER's Correction of Defective Work**

**A. One-Year Correction Period.** If, (i) during the course of DESIGN-BUILDER's performance of its obligations under the Contract Documents; or (ii) within one (1) year after the date of Substantial Completion, or (iii) within such longer period of time as may be prescribed by Legal Requirements, 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 or other areas made available for DESIGN-BUILDER's use by CITY or permitted by Legal Requirements as contemplated in Section 6.08 is found to be defective, CITY shall give written notice thereof to DESIGN-BUILDER. Within seven (7) days after the date of CITY's written notice, DESIGN-BUILDER shall, without cost to CITY and in accordance with CITY's written instructions, complete the following corrective Work or, if such corrective Work cannot be completed within seven (7) days, DESIGN-BUILDER shall reasonably commence to perform, and shall complete within a reasonable time thereafter, the following corrective Work:

1. Correct the repair of damages to the Site or other areas; or
2. Correct such defective Work, or if it has been rejected by CITY, remove it from the Site and replace it with Work that is not defective; and
3. Satisfactorily correct or remove and replace any damage to other Work or to the work of others or damage to other lands or areas resulting therefrom.

**B. Early Use of Equipment.** In special circumstances where a particular item of equipment is placed into continuous service before Substantial Completion of all of the Work, the correction period for that item may start to run from an earlier date if so provided in the Contract Documents.

**C. Additional One-Year Correction Period.** Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Section 6.13, the correction period with respect to such corrected or replaced Work will be extended for an additional period of one (1) year, or such longer period of time as may be prescribed within Section 6.13.A, after such correction or removal and replacement has been satisfactorily completed.

## **6.14 CITY's Acceptance of Defective Work**

**A. CITY's Sole Option.** If, instead of requiring correction or removal and replacement of defective Work, CITY prefers to accept such defective Work, CITY may



do so, in its sole discretion.

**B. DESIGN-BUILDER's Costs.** In the event CITY decides to accept such defective Work, DESIGN-BUILDER shall pay all costs, losses, and damages (including, but not limited to, all fees and charges of contractors, engineers, architects, attorneys, and other professionals, and all court or other dispute resolution costs) attributable to CITY's evaluation of and determination to accept such defective Work, and in addition DESIGN-BUILDER shall pay CITY for the diminished value of the Work.

**C. Deductive Change Order.** If any such acceptance occurs prior to final payment, a Change Order will be issued incorporating the necessary revisions into the Contract Documents with respect to the Work and, due to the diminished value of the Work; CITY shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, CITY may make a Claim therefore.

**D. Payment by DESIGN-BUILDER.** If the acceptance of defective Work occurs after final payment, DESIGN-BUILDER shall pay the appropriate amount to CITY.

#### **6.15 CITY's Correction of Defective Work**

**A. CITY's Right to Correct Work.** If DESIGN-BUILDER fails, within the time period set forth in Section 6.13. above after written notice from CITY, to correct, or commence to correct, defective Work or to remove and replace, or commence to remove and replace, rejected Work as required by CITY, or if DESIGN-BUILDER fails to perform the Work in accordance with the Contract Documents and Legal Requirements, or if DESIGN-BUILDER fails to comply with any other provision of the Contract Documents or Legal Requirements, or in the event of an emergency where delay by DESIGN-BUILDER would cause serious risk of loss or damage, CITY, in its sole option, may have the defective Work corrected or the rejected Work removed and replaced.

**B. CITY's Right to Take Possession.** In connection with such corrective and remedial action, CITY may exclude DESIGN-BUILDER from all or part of the Site; take possession of all or part of the Work and suspend DESIGN-BUILDER's services related thereto; take possession of DESIGN-BUILDER's tools, appliances, construction equipment, and machinery at the Site; and incorporate into the Work all materials and equipment stored at the Site or for which CITY has paid DESIGN-BUILDER but which are stored elsewhere. DESIGN-BUILDER shall allow CITY, its Consultants, CITY's other contractors, and its or their agents and employees, access to the Site to enable CITY to exercise the rights and remedies under this Section 6.13.

**C. DESIGN-BUILDER's Costs.** All costs, losses, and damages (including but not limited to all fees and charges of contractors, engineers, architects, attorneys, and other professionals, and all court or other dispute resolution costs) caused by or resulting from such removal and replacement (including, but not limited to, all costs of repair or replacement of work of others destroyed or damaged by the correction, removal, and replacement of such defective or rejected Work) or other costs, losses, and damages incurred or sustained by CITY in exercising such rights and remedies will be charged against DESIGN-BUILDER.

**D. Deductive Change Order.** If such removal and replacement occurs prior to final payment, a Change Order will be issued and CITY shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, CITY may make a Claim therefore.

**E. Payment by DESIGN-BUILDER.** If such removal and replacement occurs after

final payment, DESIGN-BUILDER shall pay the appropriate amount to CITY.

#### **6.16 No Time Extension**

A. DESIGN-BUILDER shall not be allowed an extension of the Contract Time(s) (or Milestones) because of any delay in the performance of the Work attributable to the exercise by CITY of CITY's rights and remedies under Sections 6.13, 6.14, and/or 6.15.

#### **6.17. No Effect on Legal Requirements**

A. The one-year period referenced in Section 6.13 applies only to DESIGN-BUILDER's obligation to correct defective or nonconforming Work, and such obligations are in addition to any other obligation or warranty imposed under the Contract Documents, Legal Requirements, or applicable law.

B. The provisions of Section 6.13 shall not be construed as a substitute for or waiver of the provisions of any applicable statute of limitations or repose, and the time period set forth in Section 6.13 does not constitute a period of limitations or repose for any other rights or remedies CITY may have under the Contract Documents, Legal Requirements, or applicable law with respect to enforcement of DESIGN-BUILDER's obligations.

#### **6.18 Indemnification**

A. For purposes of this Paragraph 6.18 only, the following terms shall have the meanings listed:

1. Claims means all claims, damages, liability, losses, costs and expenses, including court costs and reasonable attorneys' fees, including attorney's fees incurred by the CITY in the enforcement of this indemnity obligation.
2. DESIGN-BUILDER'S Agents means DESIGN-BUILDER's officers, employees, subconsultants, subcontractors, successors, assigns, invitees, and other agents.
3. CITY means CITY, its Program Manager/Construction Advisor and any of their agents, officials, officers, employees and program managers or construction advisors.

B. DESIGN-BUILDER's obligations under this Paragraph with respect to indemnification for acts or omissions, including negligence, of CITY, shall be limited to the coverage and limits of insurance that DESIGN-BUILDER is required to procure and maintain under this Contract. DESIGN-BUILDER affirms that it has had the opportunity to recover the costs of the liability insurance required in this Contract in its contract price.

C. DESIGN-BUILDER shall defend, indemnify and hold harmless CITY from and against all Claims arising out of or resulting from all acts or omissions in connection with this Contract caused in whole or in part by DESIGN-BUILDER or DESIGN-BUILDER's Agents, regardless of whether or not caused in part by any act or omission, including negligence, of OWNER.

D. In any and all Claims against CITY, DESIGN PROFESSIONAL, CONSULTANT, or any of their respective agents, officers, directors or employees by any employee (or the survivor or personal representative of such employee) of DESIGN-BUILDER, any Subcontractor, any Supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work, or anyone for whose acts any of

them may be liable, the indemnification obligation under Paragraph 6.18 C shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for DESIGN-BUILDER or any such Subcontractor, Supplier or other person or organization under workers' compensation acts, disability benefit acts or other employee benefit acts.

E. The indemnification obligations of DESIGN-BUILDER under Paragraph 6.18 C shall not extend to liability arising out of, resulting from, or caused by the professional negligence, errors or omissions of DESIGN PROFESSIONAL, CONSULTANT, or any of their respective agents, officers, directors or employees.

## **ARTICLE 7 OTHER WORK**

### **7.01 Related Work at Site**

A. CITY may perform other work related to the Project at the Site by CITY's own forces, or let other direct contracts therefore, or have other work performed by utility owners. If such other work is to be performed and such fact was not noted in the Contract Documents, then:

1. Written notice thereof will be given to DESIGN-BUILDER prior to starting any such other work, and
2. DESIGN-BUILDER may make a Claim therefore as provided in Article 15 if DESIGN-BUILDER believes that such performance involves additional expense to DESIGN-BUILDER or requires additional time and the parties are unable to agree as to the amount or extent thereof.

B. DESIGN-BUILDER shall afford each other contractor who is a party to such a direct contract, and each utility owner (and CITY, if CITY is performing the additional work with CITY's employees) proper and safe access to the Site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly connect and coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, DESIGN-BUILDER 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. DESIGN-BUILDER shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of CITY and the others whose work will be affected. The duties and responsibilities of DESIGN-BUILDER under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of DESIGN-BUILDER in said direct contracts between CITY and such utility owners and other contractors.

C. If the proper execution or results of any part of DESIGN-BUILDER's Work depends upon work performed by others under this Article 7, DESIGN-BUILDER shall inspect such other work and promptly report to CITY and CITY in writing any delays, defects or deficiencies in such other work that render it unavailable or unsuitable for the proper execution or results of DESIGN-BUILDER's Work. DESIGN-BUILDER's failure to report same will constitute an acceptance of such other work as fit and proper for integration with DESIGN-BUILDER's Work, except for latent or non-apparent defects and deficiencies in such other work.

### **7.02 Coordination**

**A.** If CITY contracts with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the person, firm or corporation who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified;
2. the specific matters to be covered by such authority and responsibility will be itemized; and
3. the extent of such authority and responsibilities will be provided.

**B.** Unless otherwise provided in the Supplementary Conditions, CITY shall have sole authority and responsibility in respect of such coordination.

## **ARTICLE 8 CITY'S RESPONSIBILITIES**

### **8.01 Duty to Cooperate**

**A.** CITY shall, throughout the performance of the Work, cooperate with DESIGN-BUILDER and perform CITY's responsibilities, obligations, and services in a reasonably timely manner to facilitate DESIGN-BUILDER's timely and efficient performance of the Work and so as not to unreasonably delay or interfere with DESIGN-BUILDER's performance of its obligations under the Contract Documents.

**B.** CITY shall provide DESIGN-BUILDER access to the Site, and CITY shall provide timely reviews and approvals of interim design submissions and Construction Documents consistent with the reasonable turnaround times set forth in DESIGN-BUILDER's schedule approved in writing by CITY as referenced in Section 2.5 of these General Conditions of Contract.

**C.** CITY shall evaluate Design-Builder's performance at key contractual milestones per the City's Water Service Department's (WSD) Design Professional Evaluation Process. WSD may elect to have additional evaluations during construction phase services or at the end of construction phase if applicable. Evaluations shall be submitted by the WSD Project Manager to the Design-Builder's Project Manager and Project Principal responsible for delivering the contractual obligations of this Agreement. Design-Builder shall have the opportunity to comment on the evaluation and request a meeting to discuss the evaluation.

### **8.02 Furnishing of Services and Information**

**A.** Unless stated to the contrary in the Contract Documents (including, without limitation, Article 4 hereof), CITY shall provide, at its own cost and expense, for DESIGN-BUILDER's information and use, the following, upon which DESIGN-BUILDER is entitled to rely in performing the Work unless otherwise stated in the information provided or in the Supplementary Conditions:

1. To the extent available, surveys describing the property, boundaries, topography, and reference points for use during construction, including existing service and utility lines;
2. Temporary and permanent easements, zoning, and other requirements and encumbrances affecting land use or necessary to permit the proper design and construction of the Project and enable DESIGN-BUILDER to perform the Work;
3. A legal description of the Site;

4. To the extent available, as-built and record drawings of any existing structures at the Site.

**B.** CITY is responsible for securing and executing all necessary agreements with adjacent land or property owners that are necessary to enable DESIGN-BUILDER to perform the Work. CITY is further responsible for all costs, including attorneys' fees, incurred in securing such agreements.

### **8.03 CITY's Representative**

**A.** CITY's Representative shall be responsible for providing CITY-supplied information and approvals in a reasonably timely manner to permit DESIGN-BUILDER to fulfill its obligations under the Contract Documents. CITY's Representative shall also provide DESIGN-BUILDER with prompt notice if CITY's Representative observes any material failure on the part of DESIGN-BUILDER to fulfill its contractual obligations, including any errors, omissions, or defects in the performance of the Work.

### **8.04 CITY's Separate Contractors**

**A.** CITY is responsible for all work performed on the Project or at the Site by separate contractors under CITY's control (including, without limitation, separate architects and engineers CITY has engaged for the Project). CITY shall contractually require its separate contractors to cooperate with, and coordinate their activities so as not to interfere with, DESIGN-BUILDER in order to enable DESIGN-BUILDER to timely complete the Work consistent with the Contract Documents.

## **ARTICLE 9 CHANGES IN THE WORK**

### **9.01 Authorized Changes in the Work**

**A.** Without invalidating the Contract and without notice to any surety, CITY may, at any time or from time to time, order additions, deletions or revisions in the Work. Such additions, deletions or revisions will be authorized by a Written Amendment, a Change Order, or a Work Change Directive. Upon receipt of any such document, DESIGN-BUILDER shall promptly proceed with the Work involved that will be performed under the applicable conditions of the Contract Documents.

**B.** If CITY and DESIGN-BUILDER are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price pursuant to Article 10 or an adjustment of the Contract Times pursuant to Article 11 or both that should be allowed as a result of a Work Change Directive, a Claim may be made therefore as provided in Article 15.

### **9.02 Unauthorized Changes in the Work**

**A.** DESIGN-BUILDER 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 or in the case of uncovering Work.

### **9.03 Signing of Change Orders**

**A.** CITY and DESIGN-BUILDER, shall sign appropriate Change Orders covering:

1. changes in the Work which are:

a. ordered by CITY or

b. required because of acceptance of defective Work or correcting defective

Work.; or

c. agreed to by the parties;

2. changes in the Contract Price or Contract Times or both 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; and

3. changes in the Contract Price or Contract Times or both which embody the substance of any written decision approved by CITY, provided that, in lieu of signing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws or Regulations, but during any such appeal, DESIGN-BUILDER shall carry on the Work and adhere to the progress schedule..

#### **9.04 Notification to Surety**

**A.** If notice 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 or both) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be DESIGN-BUILDER's responsibility, and the amount of each applicable Bond will be adjusted accordingly.

### **ARTICLE 10 CHANGE OF CONTRACT PRICE**

#### **10.01 Change of Contract Price**

**A.** The Contract Price constitutes the total compensation payable to DESIGN-BUILDER for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by DESIGN-BUILDER shall be at DESIGN-BUILDER's expense without change in the Contract Price.

**B.** The Contract Price may only be changed by a Change Order. Any request for an adjustment in the Contract Price shall be based on written notice delivered within fourteen (14) calendar days after occurrence of the event giving rise to the request or within fourteen (14) calendar days after first recognition of the conditions giving rise to the request. Prior notice is not required for requests or claims relating to an emergency endangering life or property as described in Paragraph 6.16. Thereafter, the DESIGN-BUILDER shall submit written documentation of its request, including appropriate supporting documentation, within ten (10) calendar days after giving notice, unless the CITY grants an extension based on good cause shown by the DESIGN-BUILDER that such additional time is warranted.

**C.** The value of any Work covered by a Change Order or of any request for 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, by application of such Unit Prices to the quantities of the items involved (subject to the provisions of Paragraph 10.04); or
2. where the Work involved is not covered by Unit Prices contained in the Contract Documents, by a mutually agreed lump sum; or
3. where the Work involved is not covered by Unit Prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 10.01 C.2, on the basis of the Cost of the Work (determined as

provided in Paragraphs 10.02 A and B) plus a DESIGN-BUILDER's fee for overhead and profit (determined as provided in Paragraph 10.01 D).

**D.** The DESIGN-BUILDER's fee allowed to DESIGN-BUILDER 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 10.02 A.1 and 10.02 A.2, the DESIGN-BUILDER's fee shall be ten percent (10%);
  - b. for costs incurred under Paragraph 10.02 A.3, the DESIGN-BUILDER's fee shall be five percent (5%);
  - c. where one or more tiers of subcontracts are on the basis of the Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 10.01 D.2 and 10.02 A.1 through A.3 is that the Subcontractor who actually performs or furnishes the Work, at whatever tier, will be paid a fee of ten percent (10%) of the costs incurred by such Subcontractor under Paragraphs 10.02 A.1 and 10.02 A.2 and that any higher tier Subcontractor and DESIGN-BUILDER will each be paid a fee of five percent (5%) of the amount paid to the next lower tier Subcontractor;
  - d. no fee shall be payable on the basis of costs itemized under Paragraphs 10.02 A.4, 10.02 A.5 and 10.02 B;
  - e. the amount of credit to be allowed by DESIGN-BUILDER to CITY for any change which results in a net decrease in cost will be the amount of the actual net decrease in costs plus a deduction in DESIGN-BUILDER's fee by an amount equal to five percent (5%) of such net decrease; and
  - f. when both additions and credits are involved in any one change, the adjustment in DESIGN-BUILDER's fee shall be computed on the basis of the net change in accordance with Paragraphs 10.01 D.2.a through 10.01 D.2.e, inclusive.

**E.** Whenever the Cost of the Work is to be determined pursuant to Paragraphs 10.02 A and B, DESIGN-BUILDER shall establish and maintain records thereof in accordance with generally accepted accounting practices and submit in form acceptable to CITY an itemized cost breakdown together with supporting data.

## **10.02 Cost of the Work**

**A.** The term "Cost of the Work" means the sum of all costs necessarily incurred and paid by DESIGN-BUILDER in the proper performance of the Work. When the value of any Work covered by a Change Order or when a request for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to DESIGN-BUILDER will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the request. Except as otherwise agreed to in writing by CITY, costs covered by Change Orders or requests shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items and shall not include any costs itemized in 10.02 B:

1. Payroll costs for employees in the direct employ of DESIGN-BUILDER in the

performance of the Work, using occupational titles and job classifications agreed upon by CITY and DESIGN-BUILDER. Such employees shall include, without limitation, job Site superintendents, foremen and other personnel employed full time at the Site. 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, vacation and holiday pay applicable thereto. The expenses of performing the Work after regular working hours, on Saturdays, Sundays 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 into the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to DESIGN-BUILDER unless CITY deposits funds with DESIGN-BUILDER with which to make payments, in which case the cash discounts shall accrue to CITY. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to CITY, and DESIGN-BUILDER shall make provisions so that they may be obtained.

3. Payments made by DESIGN-BUILDER to Subcontractors for Work performed or furnished by Subcontractors. If required by CITY, DESIGN-BUILDER shall obtain competitive bids from Subcontractors acceptable to OWNER and DESIGN-BUILDER and shall deliver such bids to CITY who will then determine, with the advice of CITY, which bids, if any, will be accepted. If any subcontract provides that the Subcontractor is to be paid on the basis of the Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as DESIGN-BUILDER's Cost of the Work and fee as provided in Paragraphs 10.01 D and E and 10.02 A and B. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

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 when such services are approved in advance by CITY in writing.

5. Other costs including the following:

a. The proportion of necessary transportation, travel and subsistence expenses of DESIGN-BUILDER'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 DESIGN-BUILDER.

c. Rentals of all construction equipment and machinery and the parts thereof whether rented from DESIGN-BUILDER or others in accordance with rental agreements approved by CITY, and the costs of transportation, loading, unloading, installation, assembly, dismantling and removal thereof, all 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. Applicable sales, consumer, use or similar taxes related to the Work, and for which DESIGN-BUILDER is liable, imposed by Laws or Regulations.

e. Deposits lost for causes other than negligence of DESIGN-BUILDER, 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 required to perform the Work.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by DESIGN-BUILDER in connection with the performance and furnishing of the Work (except losses and damages within the deductible amounts of property insurance established by CITY in accordance with Article 5), provided they have resulted from causes other than the negligence of DESIGN-BUILDER, 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 CITY. No such losses, damages and expenses shall be included in the Cost of the Work for the purpose of determining DESIGN-BUILDER's fee. If, however, any such loss or damage requires reconstruction and DESIGN-BUILDER is placed in charge thereof, DESIGN-BUILDER shall be paid for those services a fee proportionate to that stated in Paragraph 10.01 D.2.

g. The cost of utilities, fuel and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expressage and similar petty cash items in connection with the Work.

i. Cost of premiums for additional or increased Bonds, or for insurance required because of approved changes in the Work.

**B. Costs excluded:** The term "Cost of the Work" shall not include any of the following:

1. Payroll costs and other compensation of DESIGN-BUILDER's officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks and other personnel employed by DESIGN-BUILDER whether at the Site or in DESIGN-BUILDER's principal or a branch office for general administration of the Work (if not specifically included in the agreed upon occupational titles and job classifications referred to in Paragraph 10.02 A.1 or specifically covered by Paragraph 10.02 A.4), all of which are to be considered administrative costs covered by the DESIGN-BUILDER's fee.

2. Expenses of DESIGN-BUILDER's principal and branch offices other than DESIGN-BUILDER's office at the Site.

3. Any part of DESIGN-BUILDER's capital expenses, including interest on DESIGN-BUILDER's capital employed for the Work and charges against DESIGN-BUILDER for delinquent payments.

4. Costs due to the negligence of DESIGN-BUILDER, 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 10.02 A.

### **10.03 Cash Allowances**

**A.** It is understood that DESIGN-BUILDER has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be furnished and performed for such sums as may be acceptable to CITY. DESIGN-BUILDER agrees that:

1. the allowances include the cost to DESIGN-BUILDER (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. DESIGN-BUILDER's costs for unloading and handling on the Site, labor, installation costs, overhead, profit and other expenses contemplated for the 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.

**B.** Prior to final payment, an appropriate Change Order will be issued by CITY to reflect actual amounts due DESIGN-BUILDER on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

### **10.04 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 established unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Contract. 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.

**B.** Each unit price will be deemed to include an amount considered by DESIGN-BUILDER to be adequate to cover DESIGN-BUILDER's overhead and profit for each separately identified item.

**C.** CITY or DESIGN-BUILDER may negotiate an adjustment of the price per unit of Unit Price Work stated in the Contract if:

1. the quantity of any item of Unit Price Work performed by DESIGN-BUILDER differs by twenty percent (20%) or more from the estimated quantity of such item indicated in the Contract; and

2. there is no corresponding adjustment with respect to any other item of Work; and

3. DESIGN-BUILDER believes that DESIGN-BUILDER is entitled to an increase in Contract Price as a result of having incurred additional expense or CITY believes that CITY is entitled to a decrease in Contract Price.

## **10.05 Dispute Resolution**

**A.** If CITY and DESIGN-BUILDER are unable to agree on entitlement to, or magnitude of, an equitable adjustment in the Contract Price in accordance with Article 10 within fourteen (14) calendar days from the receipt of supporting documentation of the request pursuant to 10.01.B., unless the CITY grants an extension based on good cause shown by the DESIGN-BUILDER that such additional time is warranted, then a Claim for such adjustment may be made pursuant to Article 15.

## **ARTICLE 11 CONTRACT TIMES**

### **11.01 Time of the Essence**

**A.** All times stated in the Contract Documents are of the essence of the Contract.

### **11.02 Change of Contract Times**

**A.** The Contract Times (or Milestones) may only be changed by a Change Order. Any request for an adjustment in the Contract Times shall be based on written notice delivered within fourteen (14) calendar days after occurrence of the event giving rise to the request or within fourteen (14) calendar days after first recognition of the conditions giving rise to the request. Thereafter, the DESIGN-BUILDER shall submit written documentation of its requests, including appropriate supporting documentation, within ten (10) days after giving notice, unless the CITY grants an extension based on good cause shown by the DESIGN-BUILDER that such additional time is warranted.

### **11.03 Proof Required To Justify An Extension of Time For Excusable and Compensable Delays**

**A.** In support of any request for an extension of the Contract Times pursuant to this Article, DESIGN-BUILDER must demonstrate to the reasonable satisfaction of the CITY that the critical path of the approved baseline project schedule was delayed. DESIGN-BUILDER shall be entitled to an increase in contract time for the number of days that the critical path was delayed solely as a result of the compensable or excusable event. A compensable or excusable event includes, but is not limited to:

1. unreasonable delay of issuance of Notice to Proceed by CITY;
2. CITY's unreasonable delay of delivery furnished materials, equipment, or work;
3. unreasonable delay responding to shop drawings and submittals;
4. CITY's unreasonable delay in issuing a Change Order;
5. an order by the CITY to stop the Work where the DESIGN-BUILDER was not at fault; and
6. other reasonable grounds as determined by the CITY in its sole discretion.

**B.** DESIGN-BUILDER shall compare the critical path of the approved baseline project schedule to the actual critical path of the Work, identifying the specific impact of the compensable or excusable event.

**C.** DESIGN-BUILDER shall submit to the CITY a written time impact analysis

illustrating the influence of each compensable or excusable event on the date of Substantial Completion. The time impact analysis shall demonstrate the time impact based on the date of the delay in time and the event time computations or all affected activities.

**D.** If the critical path of the Work is delayed by “Force Majeure”, the DESIGN-BUILDER shall be entitled only to an extension of the Contract Times for the number of days of delay to the critical path. For purposes of this paragraph, “Force Majeure” shall mean fire, tornado, flood, earthquake, war, act of terrorism, civil disturbance, or labor strikes away from the project site.

**E.** Extensions of contract time pursuant to the this section will be granted only to the extent that the time adjustments exceed the total float time available when the event causing the delay occurred.

#### **11.04 Delays Within DESIGN-BUILDER's Control**

**A.** The Contract Times (or Milestones) will not be extended due to delays within the control of DESIGN-BUILDER. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of DESIGN-BUILDER.

#### **11.05 Delays Beyond the CITY's and DESIGN-BUILDER's Control**

**A.** Where DESIGN-BUILDER is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both CITY and DESIGN-BUILDER, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be DESIGN-BUILDER's sole and exclusive remedy for such delay.

#### **11.06 Delay Damages**

**A.** In no event shall CITY be liable to DESIGN-BUILDER, any Subcontractor, any Supplier, any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from:

1. delays caused by or within the control of DESIGN-BUILDER, or
2. delays beyond the control of CITY or DESIGN-BUILDER including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

**B.** Nothing in this Paragraph 11.06 bars a change in Contract Price pursuant to this Article 11 to compensate DESIGN-BUILDER due to delay, interference, or disruption directly attributable to actions or inaction of CITY, CITY's Consultant or anyone for whom CITY, or CITY's Consultant is responsible.

#### **11.07 Dispute Resolution**

**A.** If CITY and DESIGN-BUILDER are unable to agree on entitlement to, or magnitude of, an equitable adjustment in the Contract Time in accordance with Article 11 within fourteen (14) calendar days from the receipt of supporting documentation of the request pursuant to 11.02, unless the CITY grants an extension based on good cause shown by the DESIGN-BUILDER that such additional time is warranted, then a Claim for such adjustment may be made pursuant to Article 15.

**ARTICLE 12 TESTS AND INSPECTIONS;  
CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK**

**12.01 Access to Work**

**A.** CITY, CITY's Consultants, other representatives and personnel of CITY, independent testing laboratories and governmental agencies with jurisdictional interests will have access to the Site and Work at reasonable times for their observation, inspecting and testing. DESIGN-BUILDER shall provide them proper and safe conditions for such access and advise them of DESIGN-BUILDER's Site safety procedures and programs so that they may comply therewith as applicable.

**12.02 Tests and Inspections**

**A.** DESIGN-BUILDER shall give CITY and CITY's Representative timely notice of readiness of the Work for all required inspections, tests or approvals, and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

**B.** If any Work (or the work of others at the Site) that is to be inspected, tested or approved is covered by DESIGN-BUILDER without written approval required by Paragraphs 12.02 D or 12.02 E, it must, if requested by CITY's Representative, be uncovered for observation.

**C.** Uncovering Work as provided in Paragraph 12.02 B, shall be at DESIGN-BUILDER's expense unless DESIGN-BUILDER has given CITY and CITY's Representative timely notice of DESIGN-BUILDER's intention to cover the same and CITY and CITY's Representative have not acted with reasonable promptness in response to such notice.

**D.** If Laws or Regulations of any public body (including CITY) 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, DESIGN-BUILDER shall assume full responsibility for arranging and obtaining such inspections, tests or approvals, pay all costs in connection therewith, and furnish CITY and CITY's Representative the required certificates of inspection or approval.

**E.** DESIGN-BUILDER shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests or approvals required for CITY's and CITY's acceptance of materials or equipment to be incorporated into the Work, or acceptance of materials, mix designs, or equipment submitted for approval prior to DESIGN-BUILDER's purchase thereof for incorporation into the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to CITY.

**F.** CITY shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests or approvals covered by Paragraph 12.02 D and E;
2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 12.04 B shall be paid as provided in said Paragraph 12.04 B; and
3. as otherwise specifically provided in the Contract Documents.

**12.03 Notice of Defects**

**A.** Prompt notice of all defective Work of which the CITY has actual knowledge will be given to DESIGN-BUILDER. Defective Work may be rejected, corrected or accepted as provided in this Article 12.

#### **12.04 Uncovering Work**

**A.** If any Work (or the work of others at the Site) is covered contrary to the written request of CITY or CITY's Representative, it must, if requested by CITY's Representative, be uncovered for CITY's or CITY's Representative's observation and replaced at DESIGN-BUILDER's expense.

**B.** If CITY considers it necessary or advisable that covered Work be observed by CITY or CITY's Representative or be inspected or tested by others, DESIGN-BUILDER, at CITY's request, shall uncover, expose or otherwise make available for observation, inspection or testing as may be required, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is defective, DESIGN-BUILDER shall pay 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) caused by, arising out of or resulting from 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 CITY shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, CITY may make a Claim therefore as provided in Article 15. If, however, such Work is not found to be defective, DESIGN-BUILDER shall be allowed an increase in the Contract Price or an extension of the Contract Times (or Milestones), 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, DESIGN-BUILDER may make a Claim therefore as provided in Article 15.

#### **12.05 CITY May Stop the Work**

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

#### **12.06 Correction or Removal of Defective Work**

**A.** If required by CITY, DESIGN-BUILDER shall promptly, as directed, either correct all defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by either CITY or CITY's Representative, remove it and replace it with Work that is not defective. DESIGN-BUILDER shall pay 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) caused by or resulting from such correction or removal (including but not limited to all costs of repair or replacement of work of others).

#### **12.07 Correction Period**

**A.** If within one (1) year after the date of Substantial Completion, or such longer

period of time as may be prescribed by Laws or Regulations, 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 land or areas made available for DESIGN-BUILDER's use by CITY or permitted by Laws and Regulations as contemplated in Paragraph 6.10 is found to be defective, DESIGN-BUILDER shall promptly, without cost to CITY and in accordance with CITY's written instructions:

1. correct the repair of damages to such land or areas; or
2. correct such defective Work, or if it has been rejected by CITY, remove it from the Site and replace it with Work that is not defective; and
3. satisfactorily correct or remove and replace any damage to other Work or to the work of others or damage to other lands or areas resulting therefrom. If DESIGN-BUILDER does not promptly comply with the terms of such instructions, or in the event of an emergency where delay by DESIGN-BUILDER would cause serious risk of loss or damage, CITY may have the defective Work corrected or the rejected Work removed and replaced, and 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) caused by or resulting from such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by DESIGN-BUILDER.

**B.** 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 or by Written Amendment.

**C.** Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 12.07, the correction period hereunder with respect to such Work will be extended for an additional period of one (1) year, or such longer period of time as may be prescribed within Paragraph 12.07 A, after such correction or removal and replacement has been satisfactorily completed.

**D.** DESIGN-BUILDER's obligations under this Paragraph 12.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 12.07 shall not be construed as a substitute for or waiver of the provisions of any applicable statute of limitation or repose.

## **12.08 Acceptance of Defective Work**

**A.** If, instead of requiring correction or removal and replacement of defective Work, CITY prefers to accept it, CITY may do so. DESIGN-BUILDER shall pay 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) attributable to CITY's evaluation of and determination to accept such defective Work and shall pay OWNER for the diminished value of the Work. If any such acceptance occurs prior to CITY's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions into the Contract Documents with respect to the Work and, due to the diminished value of the Work, CITY shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, CITY may make a Claim therefore as provided in Article 15. If the

acceptance of defective Work occurs after such recommendation, an appropriate amount shall be paid by DESIGN-BUILDER to CITY.

### **12.09 CITY May Correct Defective Work**

**A.** If DESIGN-BUILDER fails within a reasonable time after written notice from CITY or CITY's Representative to correct defective Work or to remove and replace rejected Work as required by CITY in accordance with Paragraph 12.06, or if DESIGN-BUILDER fails to perform the Work in accordance with the Contract Documents, or if DESIGN-BUILDER fails to comply with any other provision of the Contract Documents, CITY may, after seven (7) days written notice to DESIGN-BUILDER, correct and remedy any such deficiency.

**B.** CITY shall proceed expeditiously when exercising the rights and remedies under this Paragraph 12.09. In connection with such corrective and remedial action, CITY may exclude DESIGN-BUILDER from all or part of the Site; take possession of all or part of the Work and suspend DESIGN-BUILDER's services related thereto; take possession of DESIGN-BUILDER's tools, appliances, construction equipment and machinery at the Site; and incorporate into the Work all materials and equipment stored at the Site or for which CITY has paid DESIGN-BUILDER but which are stored elsewhere. DESIGN-BUILDER shall allow CITY, CITY's Representative, agents and employees, CITY's other contractors, CITY and Consultants access to the Site to enable CITY to exercise the rights and remedies under this Paragraph 12.09.

**C.** 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) incurred or sustained by CITY in exercising such rights and remedies will be charged against DESIGN-BUILDER and a Change Order will be issued incorporating the necessary revisions into the Contract Documents with respect to the Work; and CITY shall be entitled to an appropriate decrease in the Contract Price. If CITY and DESIGN-BUILDER are unable to agree as to the amount thereof, CITY may make a Claim therefore as provided in Article 15. Such Claims for 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 and replacement of DESIGN-BUILDER's defective or rejected Work.

**D.** DESIGN-BUILDER shall not be allowed an extension of the Contract Times (or Milestones) because of any delay in the performance of the Work attributable to the exercise by CITY of CITY's rights and remedies under Paragraphs 12.06 and 12.09.

## **ARTICLE 13 PAYMENTS TO DESIGN-BUILDER AND COMPLETION**

### **13.01 Schedule of Values**

**A.** Pursuant to Paragraph 2.06.A.3, DESIGN-BUILDER shall submit to CITY a Schedule of Values allocating the Contract Price among the various elements of the construction portion of the Work. The Schedule of Values shall be prepared on CITY's form, with such detail and supported by such data and documentation as CITY may require. The Schedule of Values shall be used as a guideline for CITY's review of DESIGN-BUILDER's Applications for Payment for the construction portion of the Work.

### **13.02 Monthly Progress Payments**

**A.** On or before the date established in the Contract Documents, DESIGN-BUILDER shall submit, for CITY's review and approval, DESIGN-BUILDER's



Application for Payment, on CITY's form, requesting payment for all Work performed as of the date of the Application for Payment. The Application for Payment shall be complete and accurate and accompanied by all supporting documentation required by the Contract Documents and/or established at the meeting contemplated by Section 6.01.B of these General Conditions of Contract, including, without limitation, certified payrolls in form and substance acceptable to CITY. CITY shall have the right to review all design services and construction services, performed at the Site or elsewhere, to determine whether the quantity and quality of labor, services, equipment, and materials are as required by the Contract Documents and as represented in the Application for Payment.

**B.** If payment is requested on the basis of materials and equipment not incorporated into 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, paid invoice, or other documentation warranting that CITY has received the materials and equipment free and clear of all liens and claims, and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect CITY's interest therein, all of which will be subject to CITY's approval.

**C.** The Application for Payment shall constitute DESIGN-BUILDER's representation that the Work has been performed consistent with the Contract Documents and Legal Requirements, has progressed to the Design Milestone or portion of the Schedule of Values indicated in the Application for Payment, and that title to all Work will pass to CITY free and clear of all claims, liens, encumbrances, and security interests upon the incorporation of the Work into the Project, or upon DESIGN-BUILDER's receipt of payment under the Application for Payment for that portion of the Work, whichever occurs earlier.

### **13.03 Payment; Withholding of Payment**

**A.** On or before the date established in the Contract Documents, CITY shall pay DESIGN-BUILDER all amounts properly due under the Application for Payment. No payment to DESIGN-BUILDER by CITY, nor any use or occupancy of the Project or any part thereof by CITY, shall be interpreted or construed to constitute CITY's acceptance of any Work not in conformance with the Contract Documents or Legal Requirements, and shall not be held to prevent the maintenance of an action on DESIGN-BUILDER's Bonds or insurance, or against DESIGN-BUILDER directly, for failure to perform said Work in conformance with the Contract Documents and Legal Requirements. DESIGN-BUILDER expressly accepts the risk that defective Work may not be detected (1) during any review by CITY, (2) prior to CITY making any payment to DESIGN-BUILDER, or (3) prior to CITY's occupancy of the Project or any part thereof.

**B.** If CITY determines that DESIGN-BUILDER is not entitled to payment for all or part of an Application for Payment, CITY will notify DESIGN-BUILDER in writing. The notice shall indicate the specific amounts withheld, the reasons and contractual basis for the withholding, and the specific measures DESIGN-BUILDER must take to rectify CITY's concerns. Such reasons for withholding payment under an interim Application for Payment or under the Application for Final Payment shall include, but not be limited to, the following acts or omissions: (i) the assessment of liquidated damages; (ii) unsatisfactory Project progress; (iii) defective design or construction Work or materials not remedied; (iv) disputed Work; (v) failure to comply with any material provision of the Contract Documents or Legal Requirements; (vi) third party claims filed or reasonable evidence that a claim will be filed; (vii) failure to make timely payments for labor,

services, equipment, or materials; (viii) damage to CITY's separate contractor, or to a Design Subconsultant, Subcontractor, or Sub-subcontractor, (ix) reasonable evidence that a Design Subconsultant, a Subcontractor, or a Sub-subcontractor cannot be fully compensated under its contract with the DESIGN-BUILDER; (x) evidence that the remaining portion of the Work cannot be completed in accordance with the Contract Documents and Legal Requirements for the unpaid balance of the Contract Price, (xi) overstatement of amounts included in any Application for Payment, (xii) losses caused by DESIGN-BUILDER, (xiii) DESIGN-BUILDER's failure or refusal to perform any of its obligations to CITY, (xiv) citation by any enforcing authority for acts or omissions of the DESIGN-BUILDER which do not comply with the Contract Documents and/or which result in a violation of any Legal Requirements, or (xv) any other reason listed in the Prompt Pay Act. In the event an insufficient amount is due to DESIGN-BUILDER under the current Application for Payment, CITY may make written demand for the return of an amount believed by CITY to be adequate to cover CITY's potential liabilities and damages arising from DESIGN-BUILDER's specified act or omission, and DESIGN-BUILDER shall promptly comply with such demand. DESIGN-BUILDER and CITY will attempt to resolve CITY's concerns prior to the date payment is due.

**C.** CITY shall pay DESIGN-BUILDER all undisputed amounts in an Application for Payment within the times required by the Contract Documents and applicable law, including the Prompt Pay Act.

#### **13.04 DESIGN-BUILDER's Payment Obligations**

**A.** In accordance with its contractual obligations to such parties and in conformance with Missouri law, including, without limitation, the Prompt Pay Act, DESIGN-BUILDER will pay to Design Consultants and Subcontractors all amounts received by DESIGN-BUILDER from CITY on account of their services and work. DESIGN-BUILDER will impose similar requirements on its Design Subconsultants and Subcontractors to pay those parties with whom they have contracted. No subcontract or other agreement arising from this Contract shall include, by either express or implied terms, a "pay when paid" or "pay if paid" clause. Any such clause is against CITY policy and shall be considered null and void.

**B.** To the fullest extent permitted by Legal Requirements, DESIGN-BUILDER shall defend, indemnify, and hold harmless CITY, its Consultant(s), and its or their officials, officers, directors, employees, and agents from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of contractors, engineers, architects, attorneys, and other professionals and all court or other dispute resolution costs) arising out of or resulting from any claims for payment and/or mechanic's liens.

#### **13.05 Substantial Completion**

**A.** DESIGN-BUILDER shall notify City in writing when DESIGN-BUILDER believes the Work or, to the extent permitted in the Contract Documents, a portion of the Work, has achieved Substantial Completion, and shall submit to CITY a list of items remaining to be completed or corrected. Within ten (10) working days after CITY's receipt of DESIGN-BUILDER's notice, CITY and DESIGN-BUILDER will jointly inspect such Work to determine whether it is substantially complete in accordance with the requirements of the Contract Documents and Legal Requirements, including the issuance of all necessary certificates of occupancy or other authorizations for the use or occupancy of the Project required by any government or quasi-government authority having

jurisdiction over the Project.

**B.** If CITY determines that such Work is substantially complete, CITY shall prepare and issue a Certificate of Substantial Completion, signed by DESIGN-BUILDER to acknowledge the responsibilities assigned to it, that will set forth (i) the date of Substantial Completion of the Work or portion thereof, (ii) the remaining items of Work and the date on which they must be completed or corrected before final payment shall become due, (iii) provisions (to the extent not already set forth in the Contract Documents) establishing CITY's and DESIGN-BUILDER's responsibility for the Project's security, maintenance, utilities, damage to the Work, and insurance pending final payment, and (iv) an acknowledgment that warranties commence to run on the date of Substantial Completion, except as may otherwise be noted in the Certificate of Substantial Completion.

**C.** Upon Substantial Completion of the entire Work or, if applicable, any portion of the Work, and upon receipt and approval of DESIGN-BUILDER's Application for Payment therefor, CITY shall release to DESIGN-BUILDER all retained amounts relating, as applicable, to the entire Work or completed portion of the Work, less all offsets and deductions authorized by the Contract Documents or by applicable law, and less an amount equal to two hundred percent (200%) of the reasonable value of all remaining or incomplete items of Work as noted in the Certificate of Substantial Completion.

**D.** Prior to Substantial Completion of all of the Work, CITY, at its sole option, may use or occupy a portion of the Work which has been determined to have achieved Substantial Completion provided that (i) a Certificate of Substantial Completion has been issued for that portion of Work, (ii) DESIGN-BUILDER and CITY have obtained the consent of their sureties and insurers, and, to the extent applicable, the appropriate government or quasi-government authorities having jurisdiction over the Project, including, without limitation, the issuance of all necessary certificates of occupancy, and (iii) CITY and DESIGN-BUILDER agree that CITY's use or occupancy will not interfere with DESIGN-BUILDER's completion of the remaining Work. Such partial use or occupancy shall not be construed to mean that the entire Project has achieved Substantial Completion.

### **13.06 Final Completion; Final Payment**

**A.** DESIGN-BUILDER shall notify CITY in writing when DESIGN-BUILDER believes that all of the Work is finally complete and ready for CITY's final inspection. Within ten (10) working days after CITY's receipt of DESIGN-BUILDER's notice, CITY and DESIGN-BUILDER will jointly inspect the Work to determine whether the Work is finally complete in accordance with the requirements of the Contract Documents and Legal Requirements and whether the Contract has been fully performed.

**B.** At the time of submission of its Application for Final Payment, and as a condition precedent to final payment, DESIGN-BUILDER shall provide the following, in form and substance acceptable to CITY:

1. An affidavit that there are no claims, obligations, or liens outstanding or unsatisfied for labor, services, materials, equipment, taxes, or other items performed, furnished, or incurred for or in connection with the Work which might in any way affect CITY's interests, and an agreement to defend and indemnify CITY against any of same.

2. A general release executed by DESIGN-BUILDER under oath, waiving, upon receipt of final payment, all claims against CITY, except those claims previously made in writing to CITY by DESIGN-BUILDER, still pending at the time of the Application for Final Payment, and specifically identified in the general release as unsettled at the time of the Application for Final Payment;
3. Consent of DESIGN-BUILDER's surety to final payment;
4. One complete record set, both in electronic form and on a reproducible medium acceptable to CITY, of all Contract Documents and submittals;
5. All operating manuals, instruction manuals, maintenance manuals, product and manufacturers' warranties, and other documents, things, and deliverables required by the Contract Documents;
6. Certificates of insurance confirming that required coverages and limits of liability are and will remain in effect consistent with the requirements of the Contract Documents; and
7. A "Contractor Affidavit for Final Payment" from DESIGN-BUILDER and a "Subcontractor Affidavit for Final Payment" from all Subcontractors and Sub-subcontractors, regardless of tier.

**C.** After receipt of DESIGN-BUILDER's Application for Final Payment, and provided that DESIGN-BUILDER has completed all of the Work and provided all documents and information in conformance with the Contract Documents and Legal Requirements, CITY shall make final payment to DESIGN-BUILDER within the time required in the Contract Documents and pursuant to applicable Missouri law.

**D.** Upon making final payment, CITY waives all claims against DESIGN-BUILDER except claims relating to (i) DESIGN-BUILDER's failure to satisfy its payment obligations, if such failure affects CITY's interests, (ii) DESIGN-BUILDER's failure to perform and complete the Work consistent with the Contract Documents and Legal Requirements, including defects appearing after Substantial Completion, and (iii) the terms of any special warranties required by the Contract Documents.

## **ARTICLE 14 SUSPENSION OF WORK AND TERMINATION**

### **14.01 CITY May Suspend Work**

**A.** Notwithstanding any other provision of this Contract, at any time and without cause, and at its sole and absolute discretion, CITY, may suspend the Work or any portion of the Work by written notice to CONTRACTOR, which will initially fix the date on which Work will be resumed. DESIGN-BUILDER shall resume the Work on the date so fixed in the notice unless the date is changed by a subsequent written notice from CITY. DESIGN-BUILDER may be allowed an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any suspension if DESIGN-BUILDER makes a Claim therefore in accordance with Article 15.

**B.** DESIGN-BUILDER will not be allowed an adjustment in the Contract Price or an extension of the Contract Times if CITY suspends the Work because DESIGN-BUILDER's acts or omissions create or cause an emergency that CITY believes affects the safety or protection of persons, the Work, or property at the Site or adjacent thereto. CITY may order DESIGN-BUILDER to stop the Work, or any portion thereof, until the

cause for such order has been adequately addressed by DESIGN-BUILDER; however, this right of CITY to stop the Work shall not give rise to any duty on the part of CITY to exercise this right for the benefit of DESIGN-BUILDER, any Subcontractor, Supplier, other individual or entity or any surety or employee or agent of any of them.

#### **14.02 CITY May Terminate for Default**

**A.** DESIGN-BUILDER may be deemed in default and CITY may terminate the services of DESIGN-BUILDER upon the occurrence of any one or more of the following events:

1. DESIGN-BUILDER fails 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 established under Paragraph 2.06 and 2.07 as adjusted from time to time pursuant to Paragraphs 6.05, 6.06, 11.02 and 11.03);
2. DESIGN-BUILDER abandons the Work or declares its intention to abandon the work;
3. DESIGN-BUILDER assigns or attempts to assign its rights or obligations under this Contract or any part thereof to any third party without the prior written consent of CITY;
4. DESIGN-BUILDER fails to make prompt payment duly owing to any subcontractor or material supplier within thirty (30) calendar days after payment was due;
5. DESIGN-BUILDER fails to achieve the required dates of substantial and final completion;
6. DESIGN-BUILDER disregards Laws or Regulations of any public body having jurisdiction;
7. DESIGN-BUILDER disregards the authority of CITY or OWNER; or
8. DESIGN-BUILDER otherwise violates in any substantial way any provisions of the Contract Documents.

**B.** CITY may, after giving DESIGN-BUILDER (and the surety) seven (7) days written notice and to the extent permitted by Laws or Regulations, terminate the services of DESIGN-BUILDER, exclude DESIGN-BUILDER from the Site and take possession of the Work and of all DESIGN-BUILDER's tools, appliances, construction equipment and machinery at the Site and use the same to the full extent they could be used by DESIGN-BUILDER (without liability to DESIGN-BUILDER for trespass or conversion), incorporate into the Work all materials and equipment stored at the Site or for which CITY has paid DESIGN-BUILDER but which are stored elsewhere, and finish the Work as CITY may deem expedient. In such case, DESIGN-BUILDER shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds 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) sustained by CITY arising out of or resulting from completing the Work, such excess may be paid to DESIGN-BUILDER. If such costs, losses and damages exceed such unpaid balance, DESIGN-BUILDER shall pay the difference to CITY within fourteen (14) calendar days of CITY'S demand for payment. When exercising any rights or remedies under this Paragraph CITY shall not

be required to competitively bid this work unless required by law.

**C.** Where DESIGN-BUILDER's services have been so terminated by CITY, the termination will not affect any rights or remedies of CITY against DESIGN-BUILDER then existing or which may thereafter accrue. Any retention or payment of moneys due DESIGN-BUILDER by CITY will not release DESIGN-BUILDER from liability.

**D.** If, after a default termination, it is determined that the DESIGN-BUILDER was not in default, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the CITY. The CITY shall then be liable to DESIGN-BUILDER for only those costs enumerated in paragraph 14.03.

#### **14.03 CITY May Terminate for Convenience**

**A.** Notwithstanding any other provision of this Contract, upon seven (7) calendar days written notice to DESIGN-BUILDER, CITY may, at its sole and absolute discretion, without cause and without prejudice to any other right or remedy of CITY, elect to terminate the Contract. In such case, DESIGN-BUILDER shall, with thirty (30) calendar days of receiving notice of termination under this paragraph, submit to CITY its statement of costs and expenses and shall be paid:

1. for 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. for 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;
3. for all costs, losses and damages incurred in settlement of terminated contracts with Subcontractors, Suppliers and others; and
4. for reasonable expenses directly attributable to termination if approved in advance by CITY.

**B.** DESIGN-BUILDER shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

**C.** DESIGN-BUILDER waives any costs not submitted to CITY pursuant to paragraph 14.03.A.

**D.** CITY shall, within thirty (30) calendar days after receipt of DESIGN-BUILDER's statement, pay DESIGN-BUILDER all amounts it determines are properly determined.

### **ARTICLE 15 CLAIMS AND DISPUTES**

#### **15.01 Definition**

**A.** A Claim is a demand or assertion by the DESIGN-BUILDER seeking, as a matter of right, the adjustment of Contract price and/or times with respect to the terms of the Contract.

#### **15.02 Written Notice and Burden of Proof**

**A.** Claims must be made by written notice pursuant to Article 16.01. The written notice shall clearly indicate that the DESIGN-BUILDER is making a claim. The responsibility to substantiate Claims shall rest with the DESIGN-BUILDER. No Claim may be made under this Contract except as provided in this Article.

**B. Certification of Claim:** The written notice of Claim shall include the following statement signed by the DESIGN-BUILDER's representative: "The DESIGN-BUILDER certifies that all statements made and the facts set out in this claim are true and correct and that no false records have been submitted in support of this claim." **Strict compliance with this paragraph shall be a condition precedent to the creation, existence or validity of any Claim.**

### **15.03 Time Limits on Claims**

**A.** The DESIGN-BUILDER must give notice to the CITY within fourteen (14) calendar days after the denial of a request for or failure to reach an agreement on a change in Contract Price and/or change in Contract Time pursuant to Article 10 and Article 11 respectively. After the fourteen (14) day period for making Claims has expired, the Claim shall be considered waived.

**B.** The DESIGN-BUILDER shall submit the Claim to the CITY's Representative.

### **15.04 Continuing Contract Performance**

**A.** Pending final resolution of a Claim, unless otherwise agreed in writing, the DESIGN-BUILDER shall proceed diligently with performance of the Work and the CITY shall continue to make payments in accordance with the Contract Documents. The CITY may, but is not obligated to, notify the Surety of the nature and amount of the Claim.

### **15.05 Injury or Damage to Person or Property**

**A.** If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, of any of the other party's employees or agents, or of others for whose acts that party is legally liable, written notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding thirty (30) days after first observance. The notice shall provide sufficient detail to enable the other party to investigate the matter.

### **15.06 Initial Resolution of Claims and Disputes**

**A.** After the DESIGN-BUILDER has submitted the Claim to the CITY's Representative, the CITY'S Representative and DESIGN-BUILDER'S Representative shall conduct a settlement conference within fourteen (14) calendar days from the date of receipt of the Claim. If the Claim is not settled within seven (7) calendar days following the date of the settlement conference, the CITY'S Representative and the DESIGN-BUILDER's Representative shall state, in writing, following the conclusion of the seven (7) calendar day period, their respective position as to the matters in dispute.

**B.** The CITY'S and DESIGN-BUILDER'S statement of positions shall state all known factual grounds for each party's position. If the dispute remains unresolved at the end of the seven (7) calendar days from submission of the parties' written position statements, the DESIGN-BUILDER shall have the right to proceed with the pursuit of Claims pursuant to paragraph 15.07.

**C.** If a Claim has been resolved, the OWNER will prepare or obtain appropriate documentation.

### **15.07 Final Resolution of Claims and Disputes**

**A.** All administrative procedures set forth in this contract must first be exhausted before suit is filed.

**B.** If the CITY'S Representative and the DESIGN-BUILDER'S Representative are unable to resolve the dispute pursuant to 15.06, the parties must submit their statements of position to the Director, who shall review the Claim and make a decision within fourteen (14) calendar days.

**C.** Absent fraud, gross mistake or bad faith, the Director's decision shall be final and binding on CITY and DESIGN-BUILDER within fourteen (14) calendar days after issuance. The DESIGN-BUILDER shall give written notice to the CITY stating its intent to submit its Claim to a court of law pursuant to paragraph 16.05.A. within thirty (30) calendar days after notice of Director's decision.

**D.** The time frames for the Director's decision and for DESIGN-BUILDER'S written notice of intent may be by participation in voluntary mediation. Mediator selection and the procedures to be employed in voluntary mediation shall be mutually acceptable to the parties. Costs of the mediator shall be shared equally among the parties participating in the mediation. In no event shall any time frame be tolled more than 30 days for mediation. However, mediation may be employed at any time at the discretion and mutual agreement of the parties.

**E.** If the dispute is not resolved during voluntary mediation, The DESIGN-BUILDER agrees that it will file no suit based on facts or evidentiary materials that were not presented for consideration to the CITY during the mediation process or of which the DESIGN-BUILDER had knowledge and failed to present during the administrative procedures.

## **ARTICLE 16 MISCELLANEOUS**

### **16.01 Giving Notice**

**A.** Whenever any provision of the Contract Documents requires the giving of written notice, it will be given by personal delivery, by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice or by confirmed electronic facsimile transmission. Notice is effective on the date of personal delivery, deposit of registered or certified mail, postage prepaid, or confirmed electronic facsimile transmission.

### **16.02 Computation of Times**

**A.** When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last calendar day of such period. If the last day of 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.

### **16.03 Cumulative Remedies**

**A.** The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon DESIGN-BUILDER and all of the rights and remedies available to CITY and CITY hereunder 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 Documents, and 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.



#### **16.04 Survival of Obligations**

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

#### **16.05 Controlling Law**

**A.** This Contract shall be construed and governed in accordance with the laws of the State of Missouri without giving effect to Missouri's choice of law provisions. The CITY and DESIGN-BUILDER: (1) shall submit exclusively to the jurisdiction of the state and federal courts located in Jackson County, Missouri and no other; (2) shall waive any and all objections to jurisdiction and venue; and (3) shall not raise forum non-conveniens as an objection to the location of any litigation.



## SUPPLEMENTARY CONDITIONS

Project/Contract Numbers: 81000976/1643

Project Title: 60-Inch Force main Repairs at Blue River Wastewater Treatment Plant

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These Supplementary Conditions amend or supplement the General Conditions of the Construction Contract and other provisions of the Contract Documents as indicated below. All provisions that are not so amended or supplemented remain in full force and effect.

**SC-1.02.** Paragraph 1.02 Terminology, is amended by adding the Paragraph E:

### E. SPECIFICATION FORMATS AND CONVENTIONS

1. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC's "MasterFormat" numbering system.
2. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  - a. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
  - b. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Design-Builder. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Design-Builder or by others when so noted.
  - c. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

**SC-2.03 A.** Article 2, Paragraph 2.03, Copies of Documents, is amended by deleting Paragraph 2.03 A and replacing it with the following:

- A. CITY shall furnish to DESIGN-BUILDER up to one (1) copy of the Drawings and Specifications, including Addenda.

**SC-4.04** Article 4, Paragraph 4.04, Physical Conditions – Underground Facilities; Subparagraphs A and B are supplemented as follows:

In the preparation of Contract Documents, the following drawings of physical conditions of underground facilities in or relating to existing surface or subsurface structures which are at or contiguous to the Site of the Work were utilized:

1. Drawings dated 1963 entitled **Plans for Sewerage Improvements**, Pollution Control Department, City of Kansas City, Missouri, Contract No. 5 – Big Blue River Sewage Pumping Station, which may be reviewed upon request.
2. Drawings dated 1964 entitled **Plans for Sewerage Improvements**, Pollution Control Department, City of Kansas City, Missouri, Contract No. 6 – Big Blue River Sewage Pumping Station, which may be reviewed upon request.
3. Drawings dated 1964 entitled **Plans for Sewerage Improvements**, Pollution Control Department, City of Kansas City, Missouri, Contract No. 7 – Big Blue River Sewage Pumping Station Sludge Process Facilities, which may be reviewed upon request.
4. Drawings dated 1999 entitled **Plans for Sewerage Improvements**, Pollution Control Department, City of Kansas City, Missouri, Contract No. 563 – Blue River Wastewater Treatment Plant, Blue River and NEID Pump Station Improvements, which may be reviewed upon request.

**SC-4.06** Article 4, Paragraph 4.06, Asbestos, Lead-Based Paint, PCBs, Petroleum Waste or Radioactive Material, Subparagraphs A and B are supplemented as follows:

In the preparation of the Contract Documents, the following reports of explorations and tests of any Hazardous Environmental Condition(s) at the Site of the Work have were utilized:

1. Report dated October 1990 entitled **Asbestos Assessment Report, Big Blue River Wastewater Treatment Plant, City of Kansas City, Missouri**. 7300 Hawthorne Road, Kansas City, MO 64120.

**SC-5.03 A.** Article 5, Paragraph 5.03 Certificates of Insurance, Subparagraph A is amended by adding the following Subparagraph 1:

1. DESIGN-BUILDER shall obtain evidence that all Subcontractors have in force the required coverage in the amounts required by these Contract Documents, and evidence that each is current on its unemployment insurance payments before Subcontractors begin Work at the Site. DESIGN-BUILDER shall retain such evidence in its files and make available to CITY within ten (10) days after written request.

**SC-5.04 C.** Article 5, Paragraph 5.04, DESIGN-BUILDER's Liability Insurance, Subparagraph C is amended as follows:

The following additional policies of insurance are required:

6. Environmental Liability Insurance. This insurance shall protect DESIGN-BUILDER, CITY, Design Professional and Consultants as additional insureds, against claims for injuries to members of the public and damage to the property of others resulting from environmental impairment. The liability limits of the environmental policy shall not be less than \$2,000,000.
7. Asbestos Liability Insurance. This insurance shall be an "occurrence" policy and shall protect DESIGN-BUILDER, CITY, Design Professional and Consultants as additional insureds, against all claims arising from bodily injury, sickness, disease or death of any person other than the DESIGN-BUILDER's employees arising out of any act related to asbestos abatement work. The liability limits for bodily injury and property damage shall be not less than:

\$1,000,000 each occurrence  
\$2,000,000 general aggregate

If DESIGN-BUILDER provides Environmental or Asbestos Liability Insurance through a Subcontractor, DESIGN-BUILDER shall contractually require the Subcontractor to include CITY, Design Professional and Consultants as additional insureds in the Subcontractor's policy. DESIGN-BUILDER shall deliver to CITY, prior to the start of any Work at the Project Site, properly completed certificates of insurance or other evidence that the required insurance is in full force and effect, in a form acceptable to CITY. DESIGN-BUILDER shall contractually require its Subcontractor to defend, indemnify and hold harmless CITY from and against all Claims arising out of or resulting from all acts or omissions in connection with this Contract caused in whole or in part by Subcontractor or Subcontractor's agents, regardless of whether or not caused in part by any act or omission, including negligence, of CITY. DESIGN-BUILDER must provide evidence that this requirement has been complied in accordance with the provisions of Paragraphs 6.18 C.

**SC-6.02 B.** Article 6, Paragraph 6.02, Professional Design Services, is amended by adding Subparagraph B as follows:

B. The DESIGN-BUILDER and DOR are responsible for generating and certifying any drawings required to be generated to complete the Work. The City will review and approve submittals; however, DESIGN-BUILDER and DOR are responsible for complying with all applicable design standards, as required in Paragraphs 6.03 and 6.07 of the 00700 DB General Conditions of these Contract Documents.

**SC-6.07 D.** Article 6, Paragraph 6.07, Detailed Design Services, Subparagraph D as amended as follows:

D. DESIGN-BUILDER shall submit to CITY those Construction Documents consisting of drawings and specifications that describe and set forth in detail the requirements for construction of the Work. Specifications provided by the City are intended to be minimum standards for the completion of the Work; however, it is the responsibility of the DESIGN-BUILDER and the DOR to review, modify, and certify specifications, as needed, to complete the Work. The CITY will review and approve submittals as set forth in Sections 6.07.B. and 6.07.C. The Construction Documents shall be consistent with the latest set of interim design submissions; as such submissions may have been modified in a design review meeting and approved by CITY. The parties shall have a design review meeting to discuss, and CITY shall review and approve, the Construction Documents in accordance with the procedures and consistent with the purposes set forth in Sections 6.07.B. and 6.07.C. above and Section 6.07.E. below. Upon CITY's issuance of the Construction Notice to Proceed, DESIGN-BUILDER shall proceed with construction in accordance with the approved Construction Documents and shall submit to CITY, prior to commencement of construction, the number of copies of the approved Construction Documents, in the required form, as set forth in the Supplementary Conditions.

**SC-6.08 F.** Article 6, Paragraph 6.08, Legal Requirements, Subparagraph F Prevailing Wage, is supplemented as follows:

13. DESIGN-BUILDER agrees to follow the provisions of Section 290.560 - 290.575 RSMo and agrees that if a period of Excessive Unemployment has been declared at any point during the term of this Contract, it will employ and require all Subcontractors of whatever tier to employ only Resident Laborers for the Work to be performed under this CONTRACT. Provided, however, CONTRACTOR may use laborers who are not Resident

Laborers when Resident Laborers are not available or are incapable of performing the particular type of work involved if CONTRACTOR so certifies in writing to CITY and CITY issues a written approval. This provision does not apply to regularly employed nonresident executive, supervisory or technical employees.

a. "Resident Laborers" means laborers who have been residents of the State of Missouri for at least thirty days and who intend to remain Missouri residents, and residents of Nonrestrictive States.

b. "Nonrestrictive States" means states identified by the Missouri Department of Labor and Industrial Relations Division of Labor Standards that have not enacted state laws restricting Missouri laborers from working on public works projects. A list of Nonrestrictive States can be found on the Division web site at <http://www.dolir.mo.gov/lis/index.htm>.

c. A period of Excessive Unemployment is declared when the Missouri Department of Labor and Industrial Relations Division of Labor Standards provides notice of such declaration. When in effect, notice will be provided on the Division web site at <http://www.dolir.mo.gov/lis/index.htm>. It is DESIGN-BUILDER's obligation to determine whether a period of Excessive Unemployment is in effect when this Contract is let.

**SC-6.10 G.** Article 6, Paragraph 6.10, Construction Phase Services, is amended by adding the following new Subparagraph 6.10 G, Paragraph 4:

Proposed substitute items must be submitted to CITY's Representative not later than 45 days prior to the time the item is to be incorporated into the Work. Proposed substitute items must not negatively impact project schedule unless approved by CITY. Only DESIGN-BUILDER may submit proposed substitute items, and such items must be submitted to CITY's Representative on the standard CITY Form 01630 - Substitution Request. Acceptance by CITY of any proposed substitute item will be made by Change Order.

**SC-6.10 G.** Article 6, Paragraph 6.10, Construction Phase Services, is amended by adding the following new Subparagraph 6.10 G, Paragraph 5:

Manufactured goods, equipment, or commodities with equipment representatives with local offices (within the states of Kansas or Missouri) shall be purchased from those representatives.

**SC-6.12** Article 6, DESIGN-BUILDER's Warranty, is amended by adding the follow new Subparagraph 6.12 B.

DESIGN-BUILDER's warranty period shall be extended to any manufactured good, equipment, or commodities procured by DESIGN-BUILDER. If Original Equipment Manufacturer (OEM) warranty has a shorter warranty period than DESIGN-BUILDER's warranty period with CITY per the Contract, DESIGN-BUILDER shall be responsible for fixing, repairing, and replacing defective Work or equipment item at no cost to CITY.

**SC-6.13** Article 6, Paragraph 6.13, DESIGN-BUILDER's Correction of Defective Work, is amended as follows:

The correction period set forth in Paragraph 6.13 A shall be three (3) years instead of one (1) year, which longer period of time shall also be applicable to the correction period set forth in Paragraph 6.13 C. All other provisions of Paragraph 6.13 remain unchanged except as necessary to accommodate the revised length of the correction period.

**SC-11.01** Article 11, Paragraph 11.01, Time of the Essence is amended by adding the following new Subparagraphs immediately following Subparagraph 11.01 A:

B. Starting and Completion

1. The Work to be performed under this Contract shall begin on the date specified in the written Notice to proceed issued by the Director of Water Services, and the Work shall be substantially complete, in accordance with Paragraph 13.05, by October 31st. Once the Work starts, DESIGN-BUILDER shall continuously pursue completion of the Work.
2. The Work shall be completed and ready for final payment in accordance with Paragraph 13.06 within 60 Calendar Days after the date of Substantial Completion of the Work.

**SC-12.07** Article 12, Paragraph 12.07, Correction Period, Subparagraph A is amended as follows:

The correction period set forth in Paragraph 12.07 A shall be three (3) years instead of one (1) year, which longer period of time shall also be applicable to the correction period set forth in Paragraph 12.07 C. All other provisions of Paragraph 12.07 remain unchanged except as necessary to accommodate the revised length of the correction period.

**SC-13.03** Article 13, Paragraph 13.03, Payment; Withholding of Payment is amended by adding the following new Subparagraphs immediately following Subparagraph 13.03 C:

D. Liquidated Damages

1. If the Work is not substantially completed, in accordance with Paragraph 13.05, within the period stated in Paragraph 11.01 B.1, DESIGN-BUILDER shall pay to CITY the amount of One Thousand (\$1,000.00) as liquidated damages and not as a penalty for each Calendar Day until the Work is substantially complete. The amount of liquidated damages shall be deducted from any payments due or to become due DESIGN-BUILDER.
2. If the Work is not completed and ready for final payment in accordance with Paragraph 13.06, within the period stated in Paragraph 11.01 B.2, DESIGN-BUILDER shall pay to CITY the amount of Five Hundred (\$500.00) as liquidated damages and not as a penalty for each Calendar Day until the Work is completed and ready for final payment. The amount of liquidated damages shall be deducted from any payments due or to become due DESIGN-BUILDER.

**SC-13.02 A.** Article 13, Paragraph 13.02, Monthly Progress Payments, Subparagraph B is amended by adding the following:

- D. CITY shall make payments to DESIGN-BUILDER monthly on or about the \_\_\_\_\_ day of each month. Payments to DESIGN-BUILDER will be made on the basis of ninety-five percent (95%) of the value of the Work satisfactorily completed plus ninety-five percent (95%) of the value of properly stored and insured, unused materials on hand on the Site of the Work. CITY shall retain five percent (5%) of each partial payment until completion and acceptance of the Work covered by the Contract and final payment is due. All Work covered by a payment becomes CITY's property, provided that the Work paid for remains the sole responsibility of DESIGN-BUILDER until all terms and conditions of the Contract have been met.

**SC-13.05 A.** Article 13, Paragraph 13.05, Substantial Completion, Subparagraph A is supplemented as follows:

- A. To be considered substantially complete, the following items of the Work must be operational and ready for CITY's continuous use as intended:
  - Removal of steel decking and storage room prior to the start of the Work

- Asbestos coating removed from all piping, flanges, joints, studs, and nuts associated with the Work; and disposed of at an appropriately-permitted facility
- New studs and nuts installed
- Non-Destructive Pipe Testing
- Application of new high performance coating system to all piping, flanges, joints, studs, and nuts associated with the Work
- Re-placement of steel decking
- Submittal of notification in writing (via Form 01290.13) by DESIGN-BUILDER to CITY that the Work, or, the extent permitted in the Contract Documents, a portion of the work has achieved Substantial Completion
- All Work Associated with Accepted Allowances and Alternates, as identified in the Contract Documents (if applicable)

## SECTION 00830

### PREVAILING WAGE

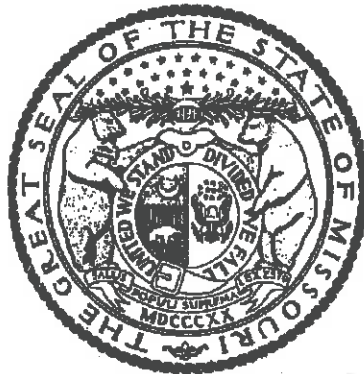
1. Annual Wage Order No. 28
2. **0830.03 Division of Labor Standards Rules & Regulations** are incorporated into and made part of this Contract and are available at <http://s1.sos.mo.gov/cmsimages/adrules/csr/current/8csr/8c30-3.pdf>.



# Missouri

## Division of Labor Standards

### WAGE AND HOUR SECTION



MICHAEL L. PARSON, Governor

## Annual Wage Order No. 28

Section 048  
**JACKSON COUNTY**

In accordance with Section 290.262 RSMo 2000, within thirty (30) days after a certified copy of this Annual Wage Order has been filed with the Secretary of State as indicated below, any person who may be affected by this Annual Wage Order may object by filing an objection in triplicate with the Labor and Industrial Relations Commission, P.O. Box 599, Jefferson City, MO 65102-0599. Such objections must set forth in writing the specific grounds of objection. Each objection shall certify that a copy has been furnished to the Division of Labor Standards, P.O. Box 449, Jefferson City, MO 65102-0449 pursuant to 8 CSR 20-5.010(1). A certified copy of the Annual Wage Order has been filed with the Secretary of State of Missouri.

Original Signed by

Taylor Burks, Director  
Division of Labor Standards

Filed With Secretary of State: \_\_\_\_\_ **March 10, 2021**

Last Date Objections May Be Filed: **April 8, 2021**

Prepared by Missouri Department of Labor and Industrial Relations

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Asbestos Worker	\$64.10
Boilermaker	*\$35.84
Bricklayer	\$57.79
Carpenter	\$58.91
Lather	
Linoleum Layer	
Millwright	
Pile Driver	
Cement Mason	\$53.63
Plasterer	
Communications Technician	\$54.21
Electrician (Inside Wireman)	\$64.85
Electrician Outside Lineman	\$69.42
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Elevator Constructor	*\$35.84
Glazier	\$55.96
Ironworker	\$65.06
<b>Laborer</b>	<b>\$47.93</b>
General Laborer	
First Semi-Skilled	
Second Semi-Skilled	
Mason	\$52.40
Marble Mason	
Marble Finisher	
Terrazzo Worker	
Terrazzo Finisher	
Tile Setter	
Tile Finisher	
Operating Engineer	\$59.15
Group I	
Group II	
Group III	
Group III-A	
Group IV	
Group V	
Painter	\$49.71
Plumber	\$72.02
Pipe Fitter	
Roofer	\$56.28
Sheet Metal Worker	\$69.56
Sprinkler Fitter	\$61.52
Truck Driver	*\$35.84
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

\*The Division of Labor Standards received less than 1,000 reportable hours for this occupational title. Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.

\*\*The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title.

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Carpenter	\$58.86
Millwright	
Pile Driver	
Electrician (Outside Lineman)	*\$35.84
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
<b>Laborer</b>	<b>\$48.78</b>
General Laborer	
Skilled Laborer	
Operating Engineer	\$57.36
Group I	
Group II	
Group III	
Group IV	
Truck Driver	\$48.89
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

Use Heavy Construction Rates on Highway and Heavy construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(3).

Use Building Construction Rates on Building construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(2).

If a worker is performing work on a heavy construction project within an occupational title that is not listed on the Heavy Construction Rate Sheet, use the rate for that occupational title as shown on the Building Construction Rate Sheet.

\*The Division of Labor Standards received less than 1,000 reportable hours for this occupational title. Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.

\*\*The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title.

# **OVERTIME and HOLIDAYS**

## **OVERTIME**

For all work performed on a Sunday or a holiday, not less than twice (2x) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work.

For all overtime work performed, not less than one and one-half (1½) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work or contractual obligation. For purposes of this subdivision, "**overtime work**" shall include work that exceeds ten hours in one day and work in excess of forty hours in one calendar week; and

A thirty-minute lunch period on each calendar day shall be allowed for each worker on a public works project, provided that such time shall not be considered as time worked.

## **HOLIDAYS**

January first;  
The last Monday in May;  
July fourth;  
The first Monday in September;  
November eleventh;  
The fourth Thursday in November; and  
December twenty-fifth;

If any holiday falls on a Sunday, the following Monday shall be considered a holiday.



**ADDENDUM NUMBER \_\_\_\_\_**

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

*[NOTE: Add Month/Date/Year for which this Addendum is officially posted by City. Be certain to remove this note before final document is printed.]*

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

*[NOTE: Addenda are used to clarify, revise, add to, or delete information in the original bidding documents or in previous addenda prior to opening of bids. Items should be organized in the same order as the original bidding documents Table of Contents. Cite the specific bidding document and the specific location within it where each change is to be made followed by the detailed change. If entire pages or documents are replaced or added as accompanying attachments, state the title of the document and the specific page number(s) removed and/or added. (e.g., Delete Section 01011 - Summary pages 1-6 and add the attached Section 01011 - Summary pages 1-10.). Be certain to remove this note before final document is printed.]*

*[NOTE: Add Month/Date/Year. Be certain to remove this note before final document is printed.]*

Bidders are hereby notified that the Bidding and Contract Documents for the above project, for which Bids are to be received on \_\_\_\_\_, are amended as follows:

*[NOTE: If the bid date is being changed add Month/Day/Year; if not, delete this sentence. Be certain to remove this note before final document is printed.]*

The Bid date for this Project stated in Document 00130 - Invitation to Bid shall be changed to: 2:00 PM, on \_\_\_\_\_.

Information to Bidders The following is provided to Bidders for information only:

*[NOTE: Include items under this heading such as Pre-bid meeting attendance list, soils report, etc.; items that should **not** be contractual, but are useful information to Bidders. Delete this heading and introduction if not applicable for this Addendum. Be certain to remove this note before final document is printed.]*

- 1.
- 2.

*[NOTE: Include Bidder/Proposer questions and answers to those questions. If questions are resolved by a contractual change, reference the contract section and make the appropriate change in one of the sections below. Delete this heading and table if not applicable for this Addendum. Be certain to remove this note before final document is printed.]*

Q1.	
A1.	
Q2.	
A2.	
Q3.	

<b>A3.</b>	

*[NOTE: Under the following sections, include changes to those documents under the heading with this same title found in Document 00010 - Table of Contents, (including changes to previous addenda). Format for revisions provided below. Delete sections if not applicable to this addendum. Be certain to remove this note before final document is printed.]*

Bidding Requirements

1. Add the following section(s):
  - a. Document, Sec. \_\_, Subparagraph \_\_, Page \_\_\_\_
  - b. Document, Sec. \_\_, Subparagraph \_\_, Page \_\_\_\_

*[OR]*

2. Delete the following section(s):
  - a. Document, Sec. \_\_, Subparagraph \_\_, Page \_\_\_\_
  - b. Document, Sec. \_\_, Subparagraph \_\_, Page \_\_\_\_

*[OR]*

3. Delete and replace the following section(s):
  - a. Delete Document, Sec. \_\_, Subparagraph \_\_, Page \_\_\_\_ and replace with the following Document, Sec. \_\_, Subparagraph \_\_, Page \_\_\_\_:
  - b. Delete Document, Sec. \_\_, Subparagraph \_\_, Page \_\_\_\_ and replace with the following Document, Sec. \_\_, Subparagraph \_\_, Page \_\_\_\_:

Contracting Requirements

- 1.
- 2.

Specifications

- 1.
- 2.

Drawings:

- 1.
- 2.

**NOTE: Bidders must acknowledge receipt of this Addendum by listing the number and date, where provided, on the Bid Form - Document 00410.**



# REQUEST FOR INTERPRETATION

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

Contractor \_\_\_\_\_

RFI Number \_\_\_\_\_ Date \_\_\_\_\_

From: \_\_\_\_\_

To: \_\_\_\_\_

Re: \_\_\_\_\_

Spec. Sec. Ref:	Paragraph:	Drawing Ref:	Detail:
-----------------	------------	--------------	---------

Signed: \_\_\_\_\_

Response: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Attachments

Response From: \_\_\_\_\_ To: \_\_\_\_\_ Date Transmitted: \_\_\_\_\_ Date Rec'd: \_\_\_\_\_

Signed: \_\_\_\_\_  
Design Professional

Signed: \_\_\_\_\_  
Owner's Representative

- Distribution:
- Owner
  - Contractor
  - Construction Manager
  - Design Professional
  - Consultant \_\_\_\_\_
  - Other \_\_\_\_\_









## SUPPLEMENTAL DESIGN INSTRUCTION

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

To Contractor \_\_\_\_\_

From: \_\_\_\_\_ SDI No \_\_\_\_\_ Issue Date: \_\_\_\_\_

The Work shall be carried out in accordance with the following supplemental instructions issued in accordance with the Contract Documents without change in Contract Price or Contract Times. Proceeding with the Work in accordance with these instructions indicates your acknowledgement that there will be no change in the Contract Price or Contract Times.

Description:

Attachments (*List*)

\_\_\_\_\_  
(Signature) Design Professional

\_\_\_\_\_  
Date

- Distribution:
- Owner
  - Contractor
  - Construction Manager
  - Design Professional
  - Consultant \_\_\_\_\_
  - Other \_\_\_\_\_



# REQUEST FOR PROPOSAL

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

To Contractor \_\_\_\_\_

From: \_\_\_\_\_ RFP No \_\_\_\_\_ Issue Date: \_\_\_\_\_

---

Please submit an itemized proposal for changes in the Contract Price and Contract Times for proposed modifications to the Contract Documents described herein. Submit proposal within \_\_\_\_\_ days, or notify the Owner in writing of the date on which you anticipate submitting your proposal.

This is NOT a Change Order, a Work Change Directive or a direction to proceed with the work described in the proposed modifications.

---

Description:

Attachments

---

Prepared by Design Professional

---

Prepared by Construction Manager

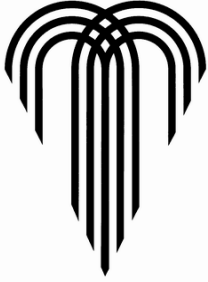
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REQUESTED by OWNER'S Representative

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Distribution:  Owner  
 Contractor  
 Construction Manager  
 Design Professional  
 Consultant \_\_\_\_\_  
 Other \_\_\_\_\_





# CHANGE ORDER

**Project Number** 81000976/1643

**Project Title** 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

Change Order No: \_\_\_\_\_ Date of Issuance: \_\_\_\_\_

Ordinance No: \_\_\_\_\_ Ordinance Effective Date: \_\_\_\_\_  
Contract Notice To Proceed Date: \_\_\_\_\_

To CONTRACTOR:

The Contract is changed as follows: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

This Change Order constitutes compensation in full on behalf of the Contractor and its subcontractors and suppliers for all costs, including impact costs and extended general conditions, and markups directly and indirectly attributable to the Work changes ordered herein, for all delays related thereto and for performance of the changes within the time stated. Contractor hereby releases all claims for delay, interruption, extended general conditions, impact and cumulative impact claims for this Work.

[Note: Identify the specific attachments; example: "Attachment A, Additional Scope of Services." Delete **all** notes before printing final]

See Attached Document(s).

[Note: If the CO does not change the Contract Price, use "Director" instead of "Director of Finance"]

**Not valid until signed by the Director of Finance.**

The original Contract Price was \_\_\_\_\_ \$0.00

Net change by previously authorized Change Orders \_\_\_\_\_ \$0.00

The Contract Price prior to this Change Order was \_\_\_\_\_ \$0.00

The Contract Price will be ( increased by) ( decreased by) ( unchanged) \_\_\_\_\_ \$0.00

The new Contract Price including this Change Order will be \_\_\_\_\_ \$0.00

[Note: If revised, establish and enter new dates. If unchanged, enter current contract dates.

If you are only changing the Final Completion date, add the following reference:

"The Contract Time for Final Completion will be . . ."]

The Contract Time will be ( increased by) ( decreased by) ( unchanged) \_\_\_\_\_ ( ) calendar days

The date of Substantial Completion as of the date of this Change Order therefore is \_\_\_\_\_ Enter Date

The date of Final Completion as of the date of this Change Order therefore is \_\_\_\_\_ Enter Date

Project No. & Title  
 Change Order No.

[Note: Include any required additional signatures.]

<b>DESIGN PROFESSIONAL:</b>	By:  Title:	Date:
<b>CONTRACTOR:</b>	By:  Title:	Date:
<b>CITY:</b>	By:  Title:	Date:

Approved as to form: \_\_\_\_\_  
 Assistant City Attorney

[Note: If this CO does not change the Contract Price, delete the cert. of funds by Finance Director but send signed copy to Finance.]

I certify there is a balance otherwise unencumbered to the credit of the appropriation to which the above amount is chargeable, and a cash balance otherwise unencumbered in the treasury to the credit of the fund from which payment is to be made, each sufficient to meet the above obligation.

\_\_\_\_\_  
 Director of Finance By: \_\_\_\_\_ Date

- Distribution:  CITY  
 CONTRACTOR  
 DESIGN PROFESSIONAL

**REMINDER:** CONTRACTOR is responsible for considering the effect this Change Order may have on its ability to meet or exceed the D/M/WBE participation amounts in its Contractor Utilization Plan (CUP) as amended by any previously approved Request for Modification/Substitution. If CONTRACTOR will not be able to achieve the approved participation amounts in performing the work included within this Change Order, or if CONTRACTOR needs to retain the services of additional D/M/WBEs not previously listed in its CUP, CONTRACTOR is advised to submit a Request for Modification/Substitution.



# WORK CHANGE DIRECTIVE

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

No.: \_\_\_\_\_ Date of Issuance: \_\_\_\_\_

TO:  
(CONTRACTOR)

You are directed to proceed promptly with the following work:

Description:

Purpose of Work Change Directive:

Attachments: *(List documents supporting change)*

If the above work results on a change in the Contract Price or Contract Times, any request for a Change Order based thereon will involve one or more of the following methods of determining the effect of the change(s).

Method of determining change in  
Contract Price:

Method of determining change in  
Contract Times:

- Unit Prices
- Lump Sum
- As Stipulated in General Conditions
- Other \_\_\_\_\_

- CONTRACTOR's Records
- DESIGN PROFESSIONAL's Records
- City's Records
- Other \_\_\_\_\_

Estimated increase (decrease) in Contract Price:  
\$ \_\_\_\_\_

Estimated increase (decrease) in Contract Times:  
Substantial Completion: \_\_\_\_\_ days;

If the change involves an increase, the estimated Amount is not to be exceeded without further authorization.

Final Completion: \_\_\_\_\_ days.  
If the change involves an increase, the estimated times are not to be exceeded without further authorization.

Recommended:

Recommended:

Recommended:

DESIGN PROFESSIONAL

Construction Manager

City

By (Authorized Signature)

By (Authorized Signature)

By (Authorized Signature)

Distribution:

- City
- Contractor
- Construction Manager
- Design Professional
- Consultant
- Other

# WORK CHANGE DIRECTIVE (“WCD”) INSTRUCTIONS

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**[Note: Do not attach these instructions to the WCD Form]**

## **A. GENERAL INFORMATION**

This document was developed for use in situations involving changes in the Work which, if not processed expeditiously, might delay the Project. These changes are often initiated in the field and may affect the Contract Price or the Contract Times. This is not a Change Order, but only a directive to proceed with Work that may be included in a subsequent Change Order. If the WCD may result in an increase in the Contract Price, a contract impact cost analysis must be performed prior to issuing the WCD. Availability of funds and authorization to expend funds must be part of the analysis.

For supplemental instructions and minor changes not involving a possible change in the Contract Price or the Contract Times a Supplemental Design Instruction may be used.

## **B. COMPLETING THE WORK CHANGE DIRECTIVE FORM**

Based on conversations between Design Professional, City’s Representative and CONTRACTOR, Design Professional must complete the following:

**DESCRIPTION:** shall include a summary of the Work included in the WCD. Additional information may be attached to the WCD to further define the scope.

**PURPOSE OF WORK CHANGE DIRECTIVE:** will identify clearly if the Work included in the WCD is an addition, deletion, revision, or some combination.

**ATTACHMENTS:** shall identify all attachments included in and made a part of the WCD. Be certain that attachments are clearly labeled.

**METHOD OF DETERMINING CHANGE, IF ANY, IN CONTRACT PRICE:** Mark the method to be used in determining the final cost of Work involved and the estimated net effect on the Contract Price. If the change involves an increase in the Contract Price and the estimated amount is approached before the additional or changed Work is completed, another WCD must be issued to change the estimated price. Do not leave blank spaces or write “To be determined” (or “TBD”). An estimated dollar figure must be assigned to the Work. If the WCD is not likely to change the Contract Price, the space for estimated increase (decrease) should be marked “No Change in Price”.

**METHOD OF DETERMINING CHANGE, IF ANY, IN CONTRACT TIMES:** Mark the method to be used in determining the change in Contract Times and the estimated increase or decrease in Contract Times. If the change involves an increase in the Contract Times and the estimated times are approached before the additional or changed Work is completed, another WCD must be issued to change the times or CONTRACTOR may stop the changed Work when the estimated times are reached. Do not leave blank spaces or write “To be determined” (or “TBD”). If the WCD is not likely to change the Contract Times, the space for estimated increase (decrease) should be marked “No Change in Times”.

Once Design Professional has completed and signed the form, all copies should be sent to CITY for authorization because Design Professional does not have authority to authorize changes in Price or Times. Once authorized by CITY, a copy must be sent by Design Professional to CONTRACTOR. Price and Times may only be changed by Change Order signed by CITY, Design Professional, and CONTRACTOR. If the value of the work included in the WCD exceeds the contingency or budget available for the contract, staff must obtain written approval from the Director or his or her designee before the WCD is issued. A Director or his or her designee may not approve a WCD that will exceed City Council authorization. If the work included in the WCD is needed as a result of an emergency, staff may proceed with the issuance of the WCD without



prior written approval even if the value of the work added is expected to exceed the contract contingency balance.

Once the Work covered by this directive is completed or final cost and times are determined. CONTRACTOR must submit proper documentation for inclusion in a Change Order.

**IF THIS IS A DIRECTIVE TO PROCEED WITH A CHANGE THAT MAY AFFECT THE CONTRACT PRICE OR THE CONTRACT TIMES A CHANGE ORDER, IF ANY, MUST BE PROCESSED PROMPTLY.**

## **SECTION 01000 – GENERAL PROJECT REQUIREMENTS**

### **PART 1 - GENERAL**

#### **1.01 SUMMARY**

- A. This section covers the general project requirements for all projects.
- B. The work to be performed under these Contract Documents shall be consistent with Section 0700-General Conditions in the construction, installation, and completion of all work required in connection with the 60-Inch Force Main Repairs at the Blue River Wastewater Treatment Plant, in Kansas City, Jackson County, Missouri.

#### **1.02 RELATED SECTIONS**

- A. Section 00700 DB – General Conditions.
- B. Section 00800 DB – Supplementary Conditions.
- C. Section 01020 – Record Documents.
- D. Section 1100 – Summary of Work
- E. Section 01300 – Submittals.
- F. Section 01329 – Safety Plan
- G. Section 01354 – Hazardous Materials Procedures
- H. Section 1410 – Regulatory Requirements
- I. Section 01565 – Worker Protection – Asbestos Abatement
- J. Section 01566 – Cleanup Operations.
- K. Section 01580 – Project Signs.
- L. Section 01581 – Public Communications.

#### **1.03 CODES AND STANDARDS**

- A. By reference, as applicable for the Work being performed.

#### **1.04 SUBMITTALS**

- A. Submit as specified in Section 01300 – Submittals.
- B. Project Communications:
  - 1. Progress Meeting Minutes.
- C. Other:
  - 1. Construction Site Plan.
  - 2. Site Safety Plan and On-Site Competent Person Designee

#### **1.05 QUALITY ASSURANCE**

- A. The Design-Builder is responsible for the quality assurance and quality control of the Work.

#### **1.06 MATERIALS SELECTION AND ACQUISITION**

- A. The Design-Builder shall not use materials or equipment removed from existing premises, except as specifically permitted by the Contract Documents. All products shall be new, never used before, unless otherwise specified.
- B. Provide interchangeable components of the same manufacturer, for similar removable components, such as: Studs, nuts, gaskets, seals, etc.

1.07 CONSTRUCTION SITE PLAN

- A. The Design-Builder shall submit a site plan showing the locations and dimensions of temporary facilities which include, but are not limited to, the following layouts and details:
  - 1. Equipment and material storage area on City property and bonded warehouses.
  - 2. Access and traffic routes.
  - 3. Indicate if a supplemental or off-site staging area is being utilized.
  - 4. Show locations of safety and construction fencing, job site trailer, construction entrances, trash dumpsters, temporary sanitary facilities and parking areas for project personnel.
- B. The Design-Builder shall submit a work sequencing plan that takes in to account the requirement to complete the Work with the two 60-inch force mains remaining in service.

1.08 EASEMENTS AND RIGHTS-OF-WAY

- A. The City will furnish the Site in accordance with Section 00700 DB - General Conditions. The Design-Builder shall confine construction operations to the immediate vicinity of the Site as shown in the Contract Documents and shall use due care in placing construction tools, equipment, excavated materials, construction materials and supplies to cause the least possible damage to City property.
- B. On Private Property: NOT USED
- C. State Highways: NOT USED

1.09 LINES AND GRADES

- A. All Work shall be done to the lines, grades and elevations indicated in these Contract Documents.
- B. Basic horizontal and vertical control points are provided in the Contract Documents. All additional survey, layout and measurement work shall be performed by the Design-Builder as a part of the Work, if needed.
- C. The Design-Builder shall provide an experienced surveyor, competent assistants and all instruments, tools, stakes and other materials required to complete the survey, layout and measurement work.
- D. The Design-Builder shall provide qualified personnel, materials and equipment (tools, stakes and other materials) as may be required for the following tasks needed in the Work:
  - 1. Establish or designate control points.
  - 2. Establish construction easement boundaries.
  - 3. Verify survey.
  - 4. Verify layout shown on the Contract Documents.
  - 5. Verify and document work performed by the Design-Builder.These efforts shall be included in the Design-Builder's bid price and performed at no additional cost to the City.
- E. The Design-Builder shall remove and reconstruct, at no additional cost to the City, any Work that was improperly installed or improperly located.
- F. See Section 01020 – Record Documents, paragraph SURVEY REQUIREMENTS for additional requirements.

- 1.10 CONNECTIONS TO EXISTING FACILITIES:
- A. Unless otherwise specified or indicated in the drawings, the Design-Builder shall make all necessary connections to existing 60-inch force mains without taking them off-line. Other existing facilities including, but not limited to, structures, drain lines, water utilities, sewer utilities, gas utilities, communications utilities and electric utilities will make all necessary connections as required by the project. In each case, the Design-Builder shall receive permission from the City or the owning utility prior to undertaking a connection or disconnection. The Design-Builder shall protect facilities against deleterious substances and damage.
  - B. Connections to existing facilities that are in service shall be thoroughly planned in advance. See 01140, 01140.01 01140.02 All required equipment, material and labor shall be on hand at the time of undertaking the connections.
- 1.11 UNFAVORABLE CONSTRUCTION CONDITIONS.
- A. During unfavorable weather, high humidity, or other unsuitable construction conditions, the Contractor shall confine operations to Work that will not be adversely affected by such conditions.
  - B. No portion of the Work shall be constructed under conditions that would adversely affect the quality or efficiency thereof, unless special means or precautions are taken by the Design-Builder to perform the Work in a manner acceptable to the City.
- 1.12 UNDERGROUND FACILITIES AND ASSOCIATED RESTORATION
- A. As provided in Section 00700 DB, paragraph 4.04 of the General Conditions, the Design-Builder shall perform all cutting and patching required for the Work and as may be necessary in connection with locating all underground facilities, installation of Work, uncovering Work for inspection or for the correction of defective Work.
  - B. The Design-Builder shall perform all cutting and patching required for and in connection with the Work, including but not limited to the following:
    - 1. Removal of improperly timed Work.
    - 2. Removal of samples of installed materials for testing.
    - 3. Alteration of existing facilities.
    - 4. Installation of new Work.
  - C. The Design-Builder shall provide all shoring, bracing, supports and protective devices necessary to safeguard all Work and existing facilities during cutting and patching operations. The Design-Builder shall not undertake any cutting or demolition that may affect the structural stability of the Work or existing facilities without City's approval.
  - D. Materials shall be cut and removed as required to complete the Work. Materials shall be removed in a careful manner, with no damage to adjacent facilities or materials.
  - E. All Work and existing facilities affected by cutting operations shall be restored with new materials, or with salvaged materials acceptable to City, to obtain a finished installation with strength, appearance and functional capacity required to match the existing area. If necessary, entire surfaces shall be patched and refinished.
  - F. The Design-Builder, at no extra cost to the City, shall replace all surface features damaged, removed or so designated to be replaced.
  - G. Design-Builder shall at no cost provide photographic documentation of all exposed work after excavation prior to additional underground work and prior to backfill. Photos shall be taken from as many angles as possible.

1.13 ENVIRONMENTAL PROTECTION

A. Laws and Regulations:

1. The Design-Builder shall conform to all laws and regulations as required by Section 00700 DB – General Conditions, Article 6 – Design-Builder’s Responsibilities.

B. Storm Water Runoff:

1. Storm Water Pollution Prevention Plan (SWPPP): NOT USED
2. Erosion Sediment Control: NOT USED
3. The Design-Builder shall prevent the pollution of drains and watercourses by sanitary wastes, sediment, debris and other substances resulting from construction activities. See Paragraph 1.38.
4. Dewatering: As required to maintain a safe working surface.
5. Concrete Washout Facilities: NOT USED

C. Air Pollution:

1. Burning: No open burning will be permitted.
2. Dust Control: See paragraph 1.37.
3. Air Monitoring will be required during asbestos abatement and will be outlined as required in Sections 01329 and 01565.

D. Other Construction Activities:

1. Disposal of Asbestos Containing Material (ACM): As required by Section 02084 – Disposal of Regulated Asbestos-Containing Material.
2. Selection and application of high performance coating system as required by Section 09960.
3. Cleanup and Site Maintenance: As required by Section 01566 – Cleanup Operations.

1.14 LICENSES, PERMITS, AND CERTIFICATES

- A. Requirements for licenses, permits and certificates are provided in Section 00700 DB – General Conditions, paragraph 6.09.
- B. Permitting exceptions (if any) are noted in Section 00800 DB – Supplementary Conditions.
- C. Requirements for training and worker protection as provided in Sections 01354, 01565 and 02084.

1.15 APPLICABLE CODES

- A. Standard specifications of the Kansas City, Missouri Department of Public Works are, by reference, hereby made a part of this contract specifications.

1.16 REFERENCE STANDARDS

- A. See Section 00700 DB – General Conditions, paragraph 3.02 for references to standards and specifications of technical societies.

1.17 PRECONSTRUCTION CONFERENCE

- A. A Preconstruction Conference will be held in accordance with Article 2 of the General Conditions. The conference will be held at a mutually agreed time and location. The conference shall be attended by:
  1. Design-Builder and the project superintendent(s).
  2. City’s Representative.
  3. Other City Staff (Engineering, Operations, etc...).

- B. Other participants as requested by the Design-Builder or City; such as the following:
  - 1. Principal Subcontractors such as Asbestos Abatement, Non-Destructive Testing, Pipe Coating, etc.
  - 2. Representative of principal suppliers and manufacturers, as appropriate.
  - 3. Utility Company representatives.
  - 4. Affected Property Owners and other stakeholders.
  - 5. Governmental representatives, as appropriate.
  - 6. The Design-Builder shall bring to the conference the Preliminary Schedules described in Article 2 of the General Conditions (Preliminary Project Schedule, Preliminary Schedule of Values, Preliminary Schedule of Shop Drawings and Samples), major outages, OCCPs, suggested communication routes, a draft risk register, and list of project goals.
- C. The purpose of the conference is to designate responsible personnel and to establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The agenda shall include, but not limited to, the following:
  - 1. Design-Builder's Preliminary Schedules.
  - 2. Document Management.
  - 3. Timing the Monthly Schedule Update.
  - 4. Processing Applications for Payment.
  - 5. Commissioning Plan including the Commissioning Manager, if applicable.
  - 6. Maintaining record documents.
  - 7. Electronic data requirements including Electronic O&M manuals and BIM (if applicable).
  - 8. Critical Work sequences.
  - 9. Field decisions and Change Orders.
  - 10. Use of premises, field office, material storage areas, security, housekeeping, and City's needs.
  - 11. Major equipment deliveries and priorities.
  - 12. Design-Builder's assignment for Safety Representative.
  - 13. Discussion of the Safety Plan (See Section 01329 –Safety Plan).
  - 14. Expectations and the Design-Builder's plan for Environmental Protection.
- D. Design-Builder will preside at the conference, will arrange for keeping the minutes and will distribute draft minutes to all persons in attendance within one business day.

1.18 **PROGRESS MEETINGS**

- A. The Design-Builder shall schedule and hold progress meetings weekly unless mutual agreed upon, and, at other times as requested by the City or as needed by the progress of the Work. The duration of the weekly meetings will mutually agree upon by the City and Design-Builder. The Design-Builder, City, and all Subcontractors active on the Site shall be represented at each meeting. The Design-Builder may, at their discretion, request attendance of their suppliers, manufacturers or other utilities.
- B. The Design-Builder shall preside at the meeting. Meeting minutes shall be prepared and distributed by the Design-Builder after review by the City or Design Professional. The purpose of the meetings will be to review the progress of the Work, maintain coordination of efforts, discuss changes in scheduling and resolve problems which may have developed on the project.
- C. Draft meeting minutes will be distributed within one business day.

- 1.19 SAFETY REPRESENTATIVE
- A. In accordance with Section 00700 DB – General Conditions, Article 6 – Design-Builder’s Responsibilities, the Design-Builder shall submit the name and complete contact information for the person designated as the Safety Representative for the Project.
  - B. In accordance with Section 01300 – Submittals, This information shall be submitted prior to the Preconstruction Conference.
  - C. If the Safety Representative changes during the Project, the Design-Builder shall designate a new person to fulfill the role and submit their name and complete contact information.
- 1.20 SAEFTY PLAN
- A. See Section 01329 – Safety Plan.
- 1.21 SITE ADMINISTRATION
- A. The Design-Builder is responsible for all areas of the site used by their personnel and all Subcontractors in the performance of the Work. The Design-Builder will exert full control over the actions of all employees and other persons with respect to the use and preservation of property and existing facilities, except such controls as may be specifically reserved to Owner or others. The Design-Builder has the right to exclude from the site all persons who have no purpose related to the Work or its inspection and may require all persons on the site to observe the same regulations as their personnel.
- 1.22 CLEAN-UP
- A. The Design-Builder shall conduct cleanup operations in accordance with Section 01566 – Project Cleanup.
- 1.23 SUBSTANTIAL COMPLETION WALKTHROUGH
- A. See Section -00700 DB – General Condition Article 13.05.
  - B. Walkthrough will also include City Employees from the operating division as designed by their Division Manager.
- 1.24 FINAL ACCEPTANCE
- A. Final Acceptance of the Work shall be in accordance with Section 00700 DB – General Conditions, Article 13.
- 1.25 EROSION AND SEDIMENT CONTROL: Not used
- 1.26 STREET LIGHTS AND SITE LIGHTING: NOT USED
- 1.27 PROJECT SIGNS
- A. Work associated with Project signs shall be done in accordance with Section 01580 – Project Signs.
- 1.28 RESTORATION
- A. The Design-Builder shall replace all surface material and shall restore all steel decking, paving, curbs, gutters, sidewalks, driveways, shrubbery, fences, sod, walls, floors, roofs, piping, conduit, cable trays, HVAC equipment, architecture features, drains, gravel, coating systems, fences, tiling, fixtures, masonry, structural supports,

doors, windows, skylights and all other features disturbed to a condition of equal to or better than before the work began, furnishing all material, labor and equipment incidental thereto.

#### 1.29 WATER

- A. The City will furnish, without charge, all water necessary for the Work. The Design-Builder shall make arrangements with the City for all water used.
- B. Use of the City's water facilities shall be at the direction of the Water Services Department so that water is not wasted and service to customers is not impaired.
- C. Any water furnished by the City must be obtained from an existing City main.
- D. The Design-Builder shall use a Reduced Pressure Zone (R.P.Z.) Backflow Preventer and meter when connected to the City's water system.
- E. When utilizing public hydrants, the Design-Builder shall contact the Kansas City Fire Department (KCFD) at (816) 513-4645 to purchase a hydrant meter permit. After securing a hydrant meter permit from KCFD, the Design-Builder shall present the permit to the Consumer Services desk located at Water Services Department headquarters, 4800 E. 63<sup>rd</sup> Street, KCMO. The Design-Builder shall apply for and pay Consumer Services the refundable security deposit. If approved, the Design-Builder shall contact the Water Services Backflow Department at (816) 513-4797 to schedule the installation of the R.P.Z./Meter (hydrant meter). The Design-Builder shall provide the location of the hydrant where the R.P.Z./Meter is to be installed. The Design-Builder shall contact the Backflow Department to have the R.P.Z./Meter moved or returned to Water Services. Jetting and Vacuum trucks with approved backflow prevention devices or air gap separation are not required to utilize a R.P.Z. backflow preventer; however, a meter to track water usage shall be used at all times. The Jetter/Vac Design-Builder shall contact the Water Services Backflow Department for issuance of the meter and pay the associated refundable security deposit. In all cases, the Design-Builder is solely responsible for any and all damage to the equipment issued by the Water Services Backflow Department. The cost to repair the damage or the cost of complete replacement of the unit shall be deducted from the security deposit.
- F. When utilizing hydrants on City projects after the facility's water meter, Design-Builder shall utilize an RPZ/Meter that is pre-approved by the City. The location and duration for the connection must be submitted 15 days prior to the proposed connection. Any unapproved connections will be grounds for removal from the Site(s) by the connecting Subcontractor.
- G. All costs for labor, material, equipment and services needed to obtain water for construction purposes shall be included in the Bid. No separate measurement or payment will be made to make connections.

#### 1.30 OPERATION OF EXISTING VALVES

- A. The Design-Builder shall not operate any valves on the City's system outside the fence line without direct supervision from a Water Services Department representative.
- B. OCCP may allow for the contractor to operate valves and equipment.
- C. If the Design-Builder needs valves operated, the request shall be made at least five (5) days in advance to Water Services for such operation, also giving notice to any affected customers/properties in accordance with the notification requirements outlined in Section 01581 – Public Communications.



- D. All fire hydrants and water valves shall be kept free from obstruction and available for use at all times.

1.31 BARRICADES AND LIGHTS

- A. All streets, roads, highways, facility roads, and other public thoroughfares which are closed to traffic shall be protected by effective barricades and acceptable warning signs. Barricades shall be located per the approved traffic control plan and associated permit. RPR will approve the barricades for facility roads.
- B. All trenches and other excavations shall be covered and shall have suitable barricades, signs and lights to provide adequate protection to the public and City Staff. Obstructions such as material piles and equipment shall be provided with similar warning signs and lights in roads.
- C. All barricades and obstructions shall be illuminated with warning lights from sunset to sunrise in the public right of way. Material storage and execution of the Work on or alongside public streets and highways shall cause the minimum obstruction and inconvenience to the traveling public.
- D. All barricades, signs, lights and other protective devices shall be installed and maintained in conformity with applicable statutory requirements and as required by the authority having jurisdiction; such as, Work within railroad right-of-way, highway right-of-way, etc.

1.32 EXISTING FENCING

- A. All existing fences affected by the Work shall be maintained by the Design-Builder until completion of the Work. Fences which interfere with construction operations shall not be relocated or dismantled until written permission is obtained from the owner of the fence including the City and the period the fence may be left relocated or dismantled has been agreed upon.
- B. Where fences must be maintained across the construction easement or plant site, adequate gates or City approved access shall be installed. Facility Gates and Gates outside facilities shall be kept closed and locked at all times when not in use. Within Facilities, operations staff will determine what gates will need to be close and locked.

1.33 SAFETY FENCING

- A. Provide fencing along the construction site at all open excavations and tunnels to control access if the excavation or tunnel can otherwise be accessed by the public.
- B. Temporary safety fencing must be a high visibility orange colored, high density polyethylene grid or approved equal, a minimum of 48 inches high and maximum mesh size of 2 inches, supported and tightly secured to steel posts located on maximum 10-foot centers, constructed at the approved location.
- C. Remove the fence from the work site upon completion of the Work.

1.34 PROTECTION OF PUBLIC AND PRIVATE PROPERTY

- A. The Design-Builder shall protect, shore, brace, support, and maintain all underground pipes, conduits, drains and other underground construction uncovered or otherwise affected by the construction operations.
- B. All steel decking, pavement, surfacing, driveways, curbs, gutters, sidewalks, buildings, utility poles, guy wires, fences, and all other features and structures affected by construction operations, together with all sod and shrubs in yards, parkways, medians and green spaces, shall be restored to their original condition,

whether within or outside the right-of-way or easement. All replacements shall be made with new materials.

1.35 DAMAGE TO EXISTING PROPERTY

- A. The Design-Builder is solely responsible for any damage to existing features, structures, Work, materials, or equipment because of their operations and shall repair or replace any damaged features, structures, Work, materials, or equipment to the satisfaction of the City and at no additional cost to the City.
- B. The Design-Builder shall protect all existing structures and property from damage and shall provide bracing, shoring, or other work necessary for such protection.
- C. The Design-Builder is responsible for all damage to streets, roads, curbs, sidewalks, highways, shoulders, ditches, embankments, culverts, bridges, or other public or private property, which may be caused by transporting equipment, materials, or personnel to or from the Work. The Design-Builder shall make satisfactory and acceptable arrangements with the agency having jurisdiction over the damaged property concerning its repair or replacement.

1.36 NOISE CONTROL

- A. The Design-Builder shall conduct construction operations as described herein and in compliance with the City of Kansas City, Missouri Code of Ordinances, Chapter 46 – NOISE CONTROL.
- B. The Design-Builder shall take all reasonable measures to avoid unnecessary noise. Such measures shall be appropriate for the normal ambient sound levels in the area during working hours. All construction machinery and vehicles shall be equipped with practical sound-muffling devices and operated in a manner to cause the least noise, consistent with the efficient performance of the Work.
- C. During construction activities on or adjacent to occupied buildings and when appropriate, the Design-Builder shall erect screens or barriers effective in reducing noise in the building and shall conduct their operations to avoid unnecessary noise which might interfere with the activities of the building occupants.
- D. Design-Builder shall insure no facilities will have noise levels that prevent a full shift at the facility per OSHA safety standards.
- E. All work including, but not limited to, excavation, demolition, alteration, or repair being performed in or adjacent to a residential area other than between the hours of 7:00 a.m. and 6:00 p.m. on weekdays, except in the case of urgent necessity in the interest of public safety, shall require a letter of permission from the Water Services Department of the City of Kansas City, Missouri.

1.37 DUST CONTROL

- A. The Design-Builder shall control dust in accordance with Section 01566 – Cleanup Operations, paragraph DUST CONTROL. The Design-Builder shall take all reasonable measures to prevent unnecessary dust. Surfaces subject to dusting shall be kept moist with water or by the approved application of an approved chemical suppressant. When practicable, dusty materials in piles or in transit shall be covered to prevent blowing.
- B. Buildings or operating facilities which may be affected adversely by dust shall be adequately protected from dust. Existing or new machinery, motors, instrument panels, or similar equipment shall be protected by suitable dust screens. Proper ventilation shall be included with dust screens.

1.38 POLLUTION CONTROL

- A. The Design-Builder shall prevent the pollution of drains (Combined Sewer, plant piping, Storm Sewer), and watercourses by sanitary wastes, sediment, debris or other substances resulting from the construction activities. No sanitary wastes will be permitted to enter any drain or watercourse other than sanitary sewers. No sediment, debris, or other substance will be permitted to enter sanitary sewers and all reasonable measures will be taken to prevent such materials from entering any drain or watercourse.

1.39 SECURITY

- A. The Design-Builder is solely responsible for security and protection of the site. This includes protecting all Work, materials, equipment, existing facilities and all temporary facilities against theft, vandals and access by unauthorized persons.
- B. No claim shall be made against the City by reason of an act of an employee or trespasser. The Design-Builder shall make good on all damage and theft of property resulting from the Design-Builder's failure to provide adequate security measures including City Property. After trespass or theft, the City may direct the Design-Builder to provide additional site security at no cost including but not limited to security cameras, on site security, and night security.

1.40 PARKING

- A. The Design-Builder shall provide and maintain suitable parking areas for the use of all City personnel, construction workers and others performing work or furnishing services in connection with the Project. Suitable parking is required to avoid the need for parking personal vehicles where they may interfere with traffic, City's operations, or construction activities. Location of the parking within Facilities should be mutually agreed up by the operating division manager and the Contactor or Design-Builder. Operating Division Manager may change parking areas as need to maintain operations

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

## SECTION 01019 – CLOSEOUT PROCEDURES

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

- A. General provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.
- B. Related Sections include the following:
  - 1. Section 00700 DB – Design-Build General Conditions.
  - 2. Section 00800 DB– Supplementary Conditions.
  - 3. Section 01020 – Record Documents.
  - 4. Section 01100 – Summary of Work
  - 5. Section 01140 – Work Restrictions.
  - 6. Section 01300 – Submittals.
  - 7. Section 01320 – Construction Progress Documentation.
  - 8. Section 01322 – Photographic and Video Documentation.
  - 9. Section 01335 – Document Management.
  - 10. Section 01433 – Manufacturers’ Field Services.
  - 11. Section 01757 – Commissioning.
  - 12. Section 01783 – Operation and Maintenance Data
  - 13. Section 01800 – Operational Change Control Plan.
  - 14. Section 01900 – Contract Closeout
  - 15. Section 01914 – Equipment Testing and System Startup.

#### 1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Inspection procedures.
  - 2. Submittals.
  - 3. Final cleaning.

#### 1.03 SUBMITTALS

- A. All Substantial Completion documents shall be submitted at least 14 calendar days prior to Substantial Completion inspection request.
  - 1. Specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  - 2. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  - 3. Prepare and submit Project Record Documents, final operation and maintenance manuals, Record Documents, damage or settlement surveys, property surveys, and similar final record information.
  - 4. Submit specific warranties, workmanship bonds, maintenance service agreements, and similar documents in accordance with this Section.
  - 5. Submit all manufacturers’ certificates in accordance with Section 01433 Manufacturers’ Field Services.

6. Submit Final Original Equipment Manufacturer Operations & Maintenance (OEM O&M) Manuals for all equipment and materials furnished as part of the Work of the Project.
  7. Prepare and submit draft Facility O&M Data and the draft Electronic O&M Manual in accordance with the requirements of this Section.
  8. Submit approved Acceptance Test Plan developed in accordance with Section 01757 Commissioning and with this Section.
  9. Deliver tools, spare parts, extra material, and maintenance products in accordance with Section 01600 Product Delivery Storage and Handling.
  10. Submit changeover information related to Owner's use, operation, and maintenance.
  11. Prepare and submit draft Project Record Documents prepared in accordance with Section 01700 Execution Requirements and submitted in accordance with the requirements of this Section.
- B. All Final Completion documents shall be submitted at least 14 calendar days prior to Final Completion inspection request. Before requesting a final inspection to determine the date of Final Completion, complete the following:
1. Submit a certified copy of the City's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by the City. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  2. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
  3. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Final operations and maintenance manuals must be provided for the training sessions.
  4. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects. Surfaces which cannot be touched-up or repaired satisfactorily, shall be refinished or replaced.
  5. Submit changeover information related to Owner's use, operation, and maintenance.
  6. Submit final O&M Data, including the final electronic O&M in accordance with the requirements of this Section.
  7. Submit Final Building Information Model incorporating all as-built information in accordance with Section 01340 Building Information Modeling Requirements.
  8. A written request for final inspection for acceptance requirements.
  9. Submit a final Application for Payment according to Section 01290.

#### 1.04 WARRANTIES

- A. Submit written warranties on request of Owner for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Partial Use: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and used by Owner during construction period by separate agreement with Design-Builder.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
  1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
  2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or

installation, including the name of the product and the name, address, and telephone number of Installer.

3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor or Design-Builder.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.
- E. Provide additional copies of each warranty as a separate pdf file.
- F. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

#### 1.05 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining the date of Substantial Completion, the Design-Builder shall comply with all conditions in Supplementary Conditions and complete the following. List items below that are incomplete in request.
1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
  2. Deliver salvaged material and similar items to location designated by the Owner. Label with manufacturer's name and model number where applicable.
  3. Complete Installation and Functional Testing of all equipment, systems and subsystems in accordance with Section 01757 Commissioning.
  4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems in accordance with Section 01757 Commissioning.
  5. Clean the project area of construction debris and other construction effects.
  6. Terminate and remove temporary facilities from the Project site, along with mockups, construction tools, and similar elements.
  7. Complete final cleaning requirements, including touchup painting.
  8. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
  9. Prepare and submit all required Submittals as specified herein.
- B. Inspection: Submit a written request for Substantial Completion inspection. On receipt of request, the Engineer will either proceed with inspection or notify Design-Builder of unfulfilled requirements. The Design-Builder will prepare the Certificate of Substantial Completion after inspection by the City. A list will be compiled with additional items identified by the City which must be completed or corrected before certificate will be issued.
1. Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
  2. Results of completed inspection will form the basis of requirements for Substantial Completion.
  3. Following completion of all items above and all requirements for Substantial Completion included in the Supplemental Conditions 00800, the Owner will complete Form 01290.02 Certificate of Substantial Completion and distribute to the Design-Builder.

#### 1.06 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining the date of Final Completion, complete the following:

1. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Final operations and maintenance manuals must be provided for the training sessions.
  2. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects. Surfaces which cannot be touched-up or repaired satisfactorily, shall be refinished or replaced.
  3. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects. Surfaces which cannot be touched-up or repaired satisfactorily, shall be refinished or replaced.
  4. Prepare and submit all required Submittals as specified herein.
- B. A written request for final inspection for acceptance must be provided to the Design-Builder. Upon receipt of request, City will either proceed with inspection or notify Design-Builder of unfulfilled requirements. City will prepare a final Certificate for Payment after inspection or will notify Design-Builder of construction that must be completed or corrected before certificate will be issued.
1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected. The Design-Builder shall pay for any re-inspection other than the first re-inspection.
  2. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."

#### 1.07 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Design-Builder shall prepare and submit three copies of punch list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Design-Builder that are outside the limits of construction. The Design-Builder shall use the standard Water Services form for all items.
1. Organize a list of spaces in sequential order,
  2. Organize items applying to each space by major element, including category equipment, and building systems.
  3. Include the following information at the top of each page:
    - a. Project Number
    - b. Project name.
    - c. Date.
    - d. Name of Design-Builder.
    - e. Page number.

#### PART 2 - PRODUCTS (NOT USED)

#### PART 3 – EXECUTION

##### 3.01 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with the manufacturer's written instructions.
- C. Complete the following cleaning operations before requesting inspection for certification of Final Completion for entire Project or for a portion of Project:

1. Clean Project site and grounds, in areas disturbed by construction activities, of rubbish, waste material, litter, and other foreign substances.
  2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
  3. Remove tools, construction equipment, machinery, and surplus material from the Project site.
  4. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, and similar spaces.
  5. Sweep concrete floors broom clean in unoccupied spaces.
  6. Remove labels that are not permanent.
  7. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already shows evidence of repair or restoration.
- D. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
1. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
  2. Clean ducts and blowers if units were operated without filters during construction.
  3. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
  4. Leave Project clean and ready for use.
- E. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the Project site and dispose of lawfully.

END OF SECTION



## **SECTION 01020 – RECORD DOCUMENTS**

### **PART 1 - GENERAL**

#### **1.01 SUMMARY**

- A. Design-Builder shall maintain, in a safe place at the Site, one updated record copy of all Drawings, Standards and Specifications, Addenda, Shop Drawings, Requests for Interpretation (RFIs), Requests for Proposal (RFPs), Work Change Directives (WCDs), Change Orders, other written interpretations or clarifications of the contract documents, survey information (including approved cut sheets) and all other documents relevant to the Work.
- B. All such documents shall be kept in order, good condition and shall be continuously updated to indicate all work installed and all changes made during construction.
- C. No work shall be allowed in the absence of these record documents.
- D. This document also outlines electronic data requirements and defines the survey requirements for the development of Field-Marked Drawings, As-Built Drawings and Conforming to Construction Drawings, as needed.

#### **1.02 RELATED SECTIONS**

- A. Section 00700 DB – General Conditions.
- B. Section 01019 – Closeout Procedures.
- C. Section 01020 – Record Documents.
- D. Section 01140 – Work Restrictions.
- E. Section 01300 – Submittals.
- F. Section 01320 – Construction Progress Documentation.
- G. Section 01322 – Photographic and Video Documentation.
- H. Section 01335 – Document Management.
- I. Section 01757 – Commissioning.
- J. Section 01783 – Operation and Maintenance Data.
- K. Section 01800 – Operational Change Control Plan.
- L. Section 01914 – Equipment Testing and System Startup

#### **1.03 CODES AND STANDARDS**

- A. CAD Standards – KC Water CAD Standards.

#### **1.04 DEFINITIONS**

- A. Drawings – As defined by Section 00700 DB – General Conditions.
- B. Approved for Construction Drawings – Any drawing or sketch that has been issued to the Design-Builder by the City for the purposes of constructing the Work. These include, but are not limited to, the following: Drawings, revisions to the Drawings, information issued as part of change orders and information issued as part of work change directives.
- C. Field-Marked Drawings (Red Line Markups) – A copy of the Approved for Construction Drawings that is maintained and updated daily by the Design-Builder during construction clearly detailing all work completed and depicting all changes made to the Work during construction.
- D. As-Built Drawings – The completed Field-Marked Drawings that include the signed certification language from both the Design-Builder and Surveyor.

- E. Conforming to Construction Drawings – The Approved for Construction Drawings that have been revised to reflect the changes noted on the As-Built Drawings. For these drawings, the CAD files are updated, revision block is updated, and a new set of drawings is created.
- F. Record Drawings – All drawings used or developed as part of the Work. Record Drawings include, but are not limited to, the following: Approved for Construction Drawings, Field-Marked Drawings, As-Built Drawings and Conforming to Construction Drawings.
- G. Record GIS – GIS files containing the site piping work completed in this project that has been created per KC Water Standards.
- H. Record Documents – As defined by this Section, Section 01015 and Section 00700 DB – General Conditions, Article 6 Design-Builder’s Responsibilities including but not limited to updated BIM, Electronic O&M Manual, OEM O&M, Record Photos, Final Submittals, SOPs, SIs, and any other specified submittals.

#### 1.05 INFORMATION PROVIDED BY THE CITY

- A. The City will provide the Design-Builder a border template to be used for all issued Construction Drawings in an electronic/CAD format, if needed.

#### 1.06 SUBMITTALS

- A. Submit as specified in Section 01300 – Submittals.
- B. Warranties and Bonds.
- C. For each item of material or equipment furnished under the Contract.
- D. Submittals include, but are not limited to, the following:
  - 1. Warranties as specified herein.
  - 2. As-Built Drawings.
  - 3. Conforming to Construction Drawings.
  - 4. Electronic Submittals:
    - a. All electronic deliverables (drawings, coordinates table, etc.) shall be made through the approved document management system. See Section 01335 – Document Management.
  - 5. As-Built Drawings:
    - a. One (1) hard copy on paper for review and approval.
    - b. One (1) electronic copy in PDF format.
    - a. One (1) electronic copy in the latest version of AutoCAD® .dwg format.
  - 6. Conforming to Construction Drawings:
    - a. One (1) signed, sealed and certified hard copy on Mylar or Vellum.
    - b. One (1) signed, sealed and certified hard copy on paper.
    - c. One (1) signed, sealed and certified electronic copy in PDF format.
    - d. One (1) signed, sealed and certified electronic copy in the latest version of AutoCAD® .dwg format.
  - 7. All Record Documents including those listed in the referenced Sections:
    - a. Submit Record Documents in accordance with Section 00700 DB – General Conditions, Article 13 – Payments to the Design-Builder and Completion.
    - b. The following shall be submitted for Record Documents:
      - i. One (1) hard copy on paper.
      - ii. One (1) electronic copy in PDF format.
      - iii. As specified in other sections.
      - iv. Electronic (PDF) Documents:
        - v. Documents shall be full scale.
        - vi. Markups shall be noted in RED.

vii. Minimum resolution shall be 600 dpi.

#### 1.07 WARRANTY

- A. Warranties and Bond are Record Documents.
- B. CITY has the right to reject warranties.
- C. CITY reserves the right to reject Work for the Project if the required warranties have not been provided.
- D. Submit form of manufacturer's warranty prior to fabrication and shipment of the item from the manufacturer's facility.
- E. Submit form of manufacturer's special warranty when specified.
- F. Provide consolidated warranties and bonds within 15 calendar days of Substantial Completion.
- G. Contents:
  - 1. Organize warranty and bond documents:
  - 2. Include Table of Contents organized by specification section number and the name of the product or work item.
  - 3. Include each required warranty and bond in proper form, with full information, are certified manufacturer as required, and are properly executed by Design-Builder, or subcontractor, supplier, or manufacturer.
  - 4. Provide name, address, phone number, and point of contact of manufacturer, supplier, and installer, as applicable.
- H. Warranty submittal format:
  - 1. Submit two (2) hardcopies.
  - 2. Hardcopies shall be assembled in 3 D-side ring binders with durable cover.
  - 3. Identify each binder on the front and spine clearly labeling the following:
    - a. Warranties and Bonds.
    - b. Project Name or Title.
    - c. Name, Address, and Telephone Number of the Design-Builder.
  - 4. Submit one (1) electronic copy in PDF format.
  - 5. The Record Documents shall be an integral part of the work guaranteed by the Design-Builder's Performance and Maintenance Bond. If during the three-year maintenance period the City determines that further revisions or corrections are necessary to make the Record Documents accurate, the Design-Builder shall make or cause the revisions or corrections to be made at no additional cost to the City.

#### 1.08 QUALITY ASSURANCE

- A. The Design-Builder is responsible for the quality assurance and quality control of the Work.

### PART 2 – PRODUCTS – NOT USED

### PART 3 – EXECUTION

#### 3.01 SURVEY REQUIREMENTS

- A. All field books, notes, videotapes and other data developed by the Design-Builder in performing required surveys as part of the Work shall be available to the City for examination throughout the

construction period. All such data shall be submitted to the City with the other documentation required for final acceptance of the Work.

B. General Requirements:

1. The Design-Builder shall provide survey grade information for the locations and elevations of the Work as described herein. Surveys shall be conducted by a Professional Land Surveyor, licensed in the State of Missouri.
2. Vertical Datum – All elevations shall be indicated in North American Vertical Datum of 1988 (NAVD 88) in feet and decimals of a foot.
3. Horizontal Control – Coordinates shall be referenced to the North American Datum of 1983 (NAD 83), State Plane Missouri West Zone FIPS 2403 US Feet coordinate system, Kansas City Metro Control. Statewide Missouri Geographical Reference System monuments, Project monuments and Certified Land corners shall be used as references to determine State Plane coordinates. All control monuments used in the survey work shall be listed with reference ties and shown on the Record Drawings.
4. Water Systems:
  - a. Fire Hydrant Assemblies – Provide survey point (location and elevation) at the top of the operating nut for each fire hydrant.
  - b. Fittings – Provide survey point (location and elevation) at the center of each fitting (i.e. bends, tees, valves, etc.). Survey shall be taken at the top of the fitting. Provide the elevation of finished grade or improvements at the top of the fitting.
  - c. Pipe Profile – Provide survey points (location and elevation) at the center point of all piping at a maximum spacing of 50 feet. Survey shall be taken on the top of the pipe. At the same location, provide the elevation of finished grade.
  - d. Valves, Valve Vaults, Meter pits and Other Structures – A survey is required to verify the location of all new valves, valve vaults, meter pits or other structures. The survey shall include, but is not limited to, the following:
    - (i) Location of the Structure – Provide coordinates for the center of the access cover.
    - (ii) Top elevation – Provide the top elevation of the structure at the center of the access cover.
5. Wastewater Systems:
  - a. Location – Verify the “Locating Point” shown on the Approved for Construction Drawings or standard detail. Verify all coordinate data shown on the Approved for Construction Drawings. If no such information is provided, the Locating Point shall be the center of the manhole cover.
  - b. Top Elevation. – Provide the elevation of the top of the structure at the Locating Point.
  - c. Pipe Inverts – Provide the invert elevation and flow direction of all pipes that penetrate the structure (flowline in - FL IN) and exit the structure (flowline out - FL OUT).
  - d. Manhole Invert – Provide the elevation of the invert at the center of the manhole if different than the pipe inverts.
6. Existing Manholes – A survey is required to verify the location of all existing manholes that are modified as part of the Work. The survey shall include, but is not limited to, the following:
  - a. Location of the Structure – Verify the “Locating Point” shown on the Approved for Construction Drawings or standard detail. Verify all coordinate data shown on the Approved for Construction Drawings. If no such information is provided, the Location Point shall be the center of the manhole cover.
  - b. Top Elevation – Provide the elevation of the top of the structure at the Locating Point.
  - c. Pipe Inverts – Provide the invert elevation and flow direction of all pipes that penetrate the structure (flowline in - FL IN) and exit the structure (flowline out - FL OUT).

- d. Manhole Invert – Provide the elevation of the invert at the center of the manhole if different from the pipe inverts.
7. Storm Water and Green Infrastructure Systems:
- a. A survey is required to verify the location of all new Green Infrastructure, Storm Water Structures, Junction Boxes, Manholes, Inlets and all other related structures. The survey shall include, but is not limited to, the following:
  - b. Location of the Structure – Verify the Locating Point shown on the Approved for Construction Drawings or standard detail. Verify all coordinate data shown on the Approved for Construction Drawings. The locating point for curb inlets is center of inside face of inlet wall. If no other locating information is provided for other structures, the Locating Point shall be the center of the access cover.
  - c. Top Elevation – Provide the elevation of the top of the structure at the Locating Point.
  - d. Pipe Inverts – Provide the invert elevation and flow direction of all pipes that penetrate the structure (flowline in - FL IN) and exit the structure (flowline out - FL OUT).
  - e. Manhole or Structure Invert – Provide the elevation of the invert at the center of the manhole or structure if different than the pipe inverts.
8. Culvert - A survey is required to verify the location of new culverts. The survey shall include, but is not limited to, the following:
- a. Location – The Locating Points shall be the center line of each culvert barrel at the upstream and downstream end of each. The location of each culvert barrel is to be provided.
  - b. Invert – Provide the upstream and downstream invert elevation of each culvert barrel.
9. Channels and Ditches:
- a. Profile – Provide survey points (location and elevation) at the upstream and downstream end of the channel and along the channel at a maximum 50-foot intervals and at all bends and changes in alignment.
  - b. Survey points shall be taken at finished grade at the centerline, toes of side slopes or walls and top elevation of the high flow channel on both sides of the channel. If water is present in the channel or ditch, provide water surface elevation on both sides of the channel.
10. Detention Areas:
- a. For any surface feature designed to detain or retain storm water runoff (i.e., detention basins, rain gardens, bio-retention cells, etc.) an as-built survey of the feature is required.
  - b. Enough survey points shall be taken to generate 1-foot contours of the detention or retention area and any containment berms.
  - c. Provide survey points (location and elevation) for both ends of weirs, all weir high and low points (if top of weir is not level) and other flow control structures, inlets and outlets.
  - d. Provide survey points (location and elevation) for both ends of weirs and all weir high and low points (if top of weir is not level) of the principle spillway structure.
11. Facility Site Assets:
- a. Site Assets shall be documented to the same level of detail as other assets (water, wastewater etc..).
  - b. Assets include all buried infrastructure in the project including but not limited to duct banks, conduit, chemical piping, casings, gravity sewers, process piping, etc.

### 3.02 FIELD-MARKED DRAWINGS

- A. The Design-Builder shall continuously maintain a set of Field-Marked Drawings which details all work completed and shows all changes or deviations made by the Design-Builder from the Approved for Construction Drawings. Where the Approved for Construction Drawings are not detailed and allow for flexibility during construction, the Design-Builder shall include the detailed information on

how the Work was constructed. These adjustments shall include, but are not limited to, field adjustments and change orders.

- B. Field-Marked Drawings shall be prepared using survey grade information to show the horizontal and vertical location of the Work after completion of construction. Connection details may be sketched using field run measurements.
- C. Mark new information that is not shown on Drawings or Shop Drawings.
- D. Include the following:
  - a. Field changes of dimension and detail.
  - b. Change Order modification. Note related Change Order numbers where applicable.
  - c. RFI modification. Note related RFI numbers where applicable.
  - d. Details not on original Drawings.
  - e. Horizontal and vertical location of all underground utilities and all other concealed elements that would be difficult or costly to maintain the installed asset long term.
- E. Precision of Measurement:
  - a. Where survey measurements are not required (sketching connection details) – elevations, stationing, distances and measurements shall be expressed to the nearest 0.10 foot.
  - b. All other Work requires survey information – elevations, station, distances and measurements shall be expressed to the nearest 0.01 foot.
  - c. Field changes or additions shall be designated in RED. Hard copy and electronic (PDF) deliverables shall be provided in color.
  - d. Information shall be clearly distinguishable on hard copy mark-ups and in the electronic files.
- F. If the Design-Builder observes inaccurate information pertaining to existing conditions, the correct information shall be noted in the Field-Marked Drawings.
- G. NOT USED.

### 3.03 AS-BUILT DRAWINGS

- A. Upon completion of the Work and before the Application for Final Payment, the Design-Builder shall prepare the As-Built Drawings by completing annotations to the Field-Marked Drawings and adding the required certification statements.
- B. Surveyor's Certification:
  - 1. Each drawing shall be modified to include a certification statement and signature block as described below.
    - a. Water Systems

Each sheet of these Record Drawings and attached Survey Cut Sheets for the Work have been reviewed and approved by the Professional Land Surveyor whose seal is affixed to this Record. The horizontal control, coordinates and elevations shown on these Records are accurate and are based on the Missouri Coordinate System of 1983, West Zone and NAVD88 datum, with the date of adjustment. These Records have been revised, as required in Section 01000, 1.20 of the Standards and Specifications for Water Main Extensions and Relocations, under my personal supervision to show the true and accurate measurements of the work as it was actually constructed.

- b. Wastewater, Storm Water and Green Infrastructure Systems

Each sheet of these Record Drawings, Record Models and attached Survey Cut Sheets for the Work have been reviewed and approved by the Professional Land Surveyor whose seal is affixed to this Record. The horizontal control coordinates and elevations

shown on these Records are accurate and are based on the Missouri Coordinate System of 1983, West Zone and NAVD88 Datum. These Records have been revised under my personal supervision to show the true and accurate measurements of the work as it was actually constructed.

2. Every sheet of the Field-Marked Drawings must be reviewed, signed and sealed by a Professional Land Surveyor, licensed in the State of Missouri and must include the following statement on the title block inside the box marked "for WSD use" and near the Surveyor's professional license seal.

C. Design-Builder's Certification:

1. Each drawing shall be modified to include a certification statement and signature block as described below:

Water Systems

*I hereby certify that this Record correctly depicts the Work constructed as to size, material, horizontal location, vertical location and finished grade as shown on the approved construction drawings or their revision. The Work was done in accordance with these Records and the current version of the Standards and Specifications for Water Main Extensions and Relocations.*

Contractor: \_\_\_\_\_ Date: \_\_\_\_\_  
Name \_\_\_\_\_ Title: \_\_\_\_\_  
(print): \_\_\_\_\_  
Signature: \_\_\_\_\_

Wastewater, Storm Water and Green Infrastructure Systems

*I hereby certify that this Record correctly depicts the Work constructed as to size, material, horizontal location, vertical location, grade of installed piping systems and finished grade as shown on the approved construction drawings or their revision. The Work was done in accordance with these Records.*

Contractor: \_\_\_\_\_ Date: \_\_\_\_\_  
Name \_\_\_\_\_ Title: \_\_\_\_\_  
(print): \_\_\_\_\_  
Signature: \_\_\_\_\_

- a. The Design-Builder shall provide certification that the Field-Marked Drawings reflect the conditions that were constructed.
  - b. The Design-Builder shall review the Field-Marked Drawings and verify all information is accurate. The Design-Builder shall verify that all changes to the Work have been documented. The Contractor or Design-Builder shall sign each sheet of the Record Drawings with the following certification(s):
- D. Submittals – Submit As-Built Drawings in accordance with paragraph SUBMITTALS. As-Built and Conforming to Construction Drawings must be approved by the City before the Design-Builder submits the Application for Final Payment.
1. Mark each document "AS-BUILT DRAWINGS" in neat, large print letters.
  2. The cover sheet of the project shall be included. The cover sheet shall include all required As-Built certifications and shall clearly show that the drawings are AS-BUILT.

### 3.05 RECORD MODEL

- A. BIM model of the structure constructed or modified during this project.
- B. Record Model should be per KC BIM standards with Record documents and drawings linked.
- C. All BIM files and associated files shall be tagged according to Record File Standard.

### 3.06 CONFORMING TO CONSTRUCTION DRAWINGS AND MODEL

- A. Conforming to Construction Drawings shall be submitted and accepted by the City before the Design-Builder may submit the Application for Final Payment.
- B. The Design-Builder shall edit the CAD drawings to reflect the changes shown on the As-Built Drawings. All line work and text shall be revised and edited to accurately reflect the information provided in the As-Built Drawings. Line work shall be drawn to scale in the coordinate system and datum specified herein.
- C. Version – CAD drawings shall be developed and submitted in the latest version of AutoCAD® .dwg format or AutoCAD® Civil 3D.
- D. CAD Standards – Comply with KC Water CAD Standards.
- E. GIS Standards – Comply with KC Water GIS Standards.
- F. The cover sheet of the project shall be included. The cover sheet shall include all required as-built certifications and shall clearly show that the drawings are as-built.
- G. Conforming to Construction Drawings shall have a “CONFORMED TO CONSTRUCTION” label clearly and prominently shown on each sheet, preferably in the lower right-hand corner of the drawing.
- H. Conforming to Construction Drawings shall be labeled with the following information:
  - 1. Project Name.
  - 2. WSD Project Number.
  - 3. WSD Work Order Number.
  - 4. WSD Drawing Number.
  - 5. CMMS Assets.
  - 6. Date of publication.

### 3.07 OTHER RECORD DOCUMENTS

- A. As defined by Section 00700 DB – General Conditions, Article 6 – Design-Builder’s Responsibilities. Section 01021 – Operation and Maintenance Data, Section 01300 –Submittals, Section 01320 – Construction Progress Documentation, Section 01322 – Photographic and Video Documentation, Section 01757 – Commissioning, etc...
- B. GIS Data of Site Piping.
- C. Coordinates Table – Provide a Microsoft Excel spreadsheet that contains the coordinates of every asset installed or adjusted as part of the Work.
- D. Survey Cut Sheets.
- E. NOT USED.

END OF SECTION



## **SECTION 01000 – GENERAL PROJECT REQUIREMENTS**

### **PART 1 - GENERAL**

#### **1.01 SUMMARY**

- A. This section covers the general project requirements for all projects.
- B. The work to be performed under these Contract Documents shall be consistent with Section 0700-General Conditions in the construction, installation, and completion of all work required in connection with the 60-Inch Force Main Repairs at the Blue River Wastewater Treatment Plant, in Kansas City, Jackson County, Missouri.

#### **1.02 RELATED SECTIONS**

- A. Section 00700 DB – General Conditions.
- B. Section 00800 DB – Supplementary Conditions.
- C. Section 01020 – Record Documents.
- D. Section 1100 – Summary of Work
- E. Section 01300 – Submittals.
- F. Section 01329 – Safety Plan
- G. Section 01354 – Hazardous Materials Procedures
- H. Section 1410 – Regulatory Requirements
- I. Section 01565 – Worker Protection – Asbestos Abatement
- J. Section 01566 – Cleanup Operations.
- K. Section 01580 – Project Signs.
- L. Section 01581 – Public Communications.

#### **1.03 CODES AND STANDARDS**

- A. By reference, as applicable for the Work being performed.

#### **1.04 SUBMITTALS**

- A. Submit as specified in Section 01300 – Submittals.
- B. Project Communications:
  - 1. Progress Meeting Minutes.
- C. Other:
  - 1. Construction Site Plan.
  - 2. Site Safety Plan and On-Site Competent Person Designee

#### **1.05 QUALITY ASSURANCE**

- A. The Design-Builder is responsible for the quality assurance and quality control of the Work.

#### **1.06 MATERIALS SELECTION AND ACQUISITION**

- A. The Design-Builder shall not use materials or equipment removed from existing premises, except as specifically permitted by the Contract Documents. All products shall be new, never used before, unless otherwise specified.
- B. Provide interchangeable components of the same manufacturer, for similar removable components, such as: Studs, nuts, gaskets, seals, etc.

1.07 CONSTRUCTION SITE PLAN

- A. The Design-Builder shall submit a site plan showing the locations and dimensions of temporary facilities which include, but are not limited to, the following layouts and details:
  - 1. Equipment and material storage area on City property and bonded warehouses.
  - 2. Access and traffic routes.
  - 3. Indicate if a supplemental or off-site staging area is being utilized.
  - 4. Show locations of safety and construction fencing, job site trailer, construction entrances, trash dumpsters, temporary sanitary facilities and parking areas for project personnel.
- B. The Design-Builder shall submit a work sequencing plan that takes in to account the requirement to complete the Work with the two 60-inch force mains remaining in service.

1.08 EASEMENTS AND RIGHTS-OF-WAY

- A. The City will furnish the Site in accordance with Section 00700 DB - General Conditions. The Design-Builder shall confine construction operations to the immediate vicinity of the Site as shown in the Contract Documents and shall use due care in placing construction tools, equipment, excavated materials, construction materials and supplies to cause the least possible damage to City property.
- B. On Private Property: NOT USED
- C. State Highways: NOT USED

1.09 LINES AND GRADES

- A. All Work shall be done to the lines, grades and elevations indicated in these Contract Documents.
- B. Basic horizontal and vertical control points are provided in the Contract Documents. All additional survey, layout and measurement work shall be performed by the Design-Builder as a part of the Work, if needed.
- C. The Design-Builder shall provide an experienced surveyor, competent assistants and all instruments, tools, stakes and other materials required to complete the survey, layout and measurement work.
- D. The Design-Builder shall provide qualified personnel, materials and equipment (tools, stakes and other materials) as may be required for the following tasks needed in the Work:
  - 1. Establish or designate control points.
  - 2. Establish construction easement boundaries.
  - 3. Verify survey.
  - 4. Verify layout shown on the Contract Documents.
  - 5. Verify and document work performed by the Design-Builder.These efforts shall be included in the Design-Builder's bid price and performed at no additional cost to the City.
- E. The Design-Builder shall remove and reconstruct, at no additional cost to the City, any Work that was improperly installed or improperly located.
- F. See Section 01020 – Record Documents, paragraph SURVEY REQUIREMENTS for additional requirements.

- 1.10 CONNECTIONS TO EXISTING FACILITIES:
- A. Unless otherwise specified or indicated in the drawings, the Design-Builder shall make all necessary connections to existing 60-inch force mains without taking them off-line. Other existing facilities including, but not limited to, structures, drain lines, water utilities, sewer utilities, gas utilities, communications utilities and electric utilities will make all necessary connections as required by the project. In each case, the Design-Builder shall receive permission from the City or the owning utility prior to undertaking a connection or disconnection. The Design-Builder shall protect facilities against deleterious substances and damage.
  - B. Connections to existing facilities that are in service shall be thoroughly planned in advance. See 01140, 01140.01 01140.02. All required equipment, material and labor shall be on hand at the time of undertaking the connections.
- 1.11 UNFAVORABLE CONSTRUCTION CONDITIONS.
- A. During unfavorable weather, high humidity, or other unsuitable construction conditions, the Contractor shall confine operations to Work that will not be adversely affected by such conditions.
  - B. No portion of the Work shall be constructed under conditions that would adversely affect the quality or efficiency thereof, unless special means or precautions are taken by the Design-Builder to perform the Work in a manner acceptable to the City.
- 1.12 UNDERGROUND FACILITIES AND ASSOCIATED RESTORATION
- A. As provided in Section 00700 DB, paragraph 4.04 of the General Conditions, the Design-Builder shall perform all cutting and patching required for the Work and as may be necessary in connection with locating all underground facilities, installation of Work, uncovering Work for inspection or for the correction of defective Work.
  - B. The Design-Builder shall perform all cutting and patching required for and in connection with the Work, including but not limited to the following:
    - 1. Removal of improperly timed Work.
    - 2. Removal of samples of installed materials for testing.
    - 3. Alteration of existing facilities.
    - 4. Installation of new Work.
  - C. The Design-Builder shall provide all shoring, bracing, supports and protective devices necessary to safeguard all Work and existing facilities during cutting and patching operations. The Design-Builder shall not undertake any cutting or demolition that may affect the structural stability of the Work or existing facilities without City's approval.
  - D. Materials shall be cut and removed as required to complete the Work. Materials shall be removed in a careful manner, with no damage to adjacent facilities or materials.
  - E. All Work and existing facilities affected by cutting operations shall be restored with new materials, or with salvaged materials acceptable to City, to obtain a finished installation with strength, appearance and functional capacity required to match the existing area. If necessary, entire surfaces shall be patched and refinished.
  - F. The Design-Builder, at no extra cost to the City, shall replace all surface features damaged, removed or so designated to be replaced.
  - G. Design-Builder shall at no cost provide photographic documentation of all exposed work after excavation prior to additional underground work and prior to backfill. Photos shall be taken from as many angles as possible.

1.13 ENVIRONMENTAL PROTECTION

A. Laws and Regulations:

1. The Design-Builder shall conform to all laws and regulations as required by Section 00700 DB – General Conditions, Article 6 – Design-Builder’s Responsibilities.

B. Storm Water Runoff:

1. Storm Water Pollution Prevention Plan (SWPPP): NOT USED
2. Erosion Sediment Control: NOT USED
3. The Design-Builder shall prevent the pollution of drains and watercourses by sanitary wastes, sediment, debris and other substances resulting from construction activities. See Paragraph 1.38.
4. Dewatering: As required to maintain a safe working surface.
5. Concrete Washout Facilities: NOT USED

C. Air Pollution:

1. Burning: No open burning will be permitted.
2. Dust Control: See paragraph 1.37.
3. Air Monitoring will be required during asbestos abatement and will be outlined as required in Sections 01329 and 01565.

D. Other Construction Activities:

1. Disposal of Asbestos Containing Material (ACM): As required by Section 02084 – Disposal of Regulated Asbestos-Containing Material.
2. Selection and application of high performance coating system as required by Section 09960.
3. Cleanup and Site Maintenance: As required by Section 01566 – Cleanup Operations.

1.14 LICENSES, PERMITS, AND CERTIFICATES

- A. Requirements for licenses, permits and certificates are provided in Section 00700 DB – General Conditions, paragraph 6.09.
- B. Permitting exceptions (if any) are noted in Section 00800 DB – Supplementary Conditions.
- C. Requirements for training and worker protection as provided in Sections 01354, 01565 and 02084.

1.15 APPLICABLE CODES

- A. Standard specifications of the Kansas City, Missouri Department of Public Works are, by reference, hereby made a part of this contract specifications.

1.16 REFERENCE STANDARDS

- A. See Section 00700 DB – General Conditions, paragraph 3.02 for references to standards and specifications of technical societies.

1.17 PRECONSTRUCTION CONFERENCE

- A. A Preconstruction Conference will be held in accordance with Article 2 of the General Conditions. The conference will be held at a mutually agreed time and location. The conference shall be attended by:
  1. Design-Builder and the project superintendent(s).
  2. City’s Representative.
  3. Other City Staff (Engineering, Operations, etc...).

- B. Other participants as requested by the Design-Builder or City; such as the following:
  - 1. Principal Subcontractors such as Asbestos Abatement, Non-Destructive Testing, Pipe Coating, etc.
  - 2. Representative of principal suppliers and manufacturers, as appropriate.
  - 3. Utility Company representatives.
  - 4. Affected Property Owners and other stakeholders.
  - 5. Governmental representatives, as appropriate.
  - 6. The Design-Builder shall bring to the conference the Preliminary Schedules described in Article 2 of the General Conditions (Preliminary Project Schedule, Preliminary Schedule of Values, Preliminary Schedule of Shop Drawings and Samples), major outages, OCCPs, suggested communication routes, a draft risk register, and list of project goals.
- C. The purpose of the conference is to designate responsible personnel and to establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The agenda shall include, but not limited to, the following:
  - 1. Design-Builder's Preliminary Schedules.
  - 2. Document Management.
  - 3. Timing the Monthly Schedule Update.
  - 4. Processing Applications for Payment.
  - 5. Commissioning Plan including the Commissioning Manager, if applicable.
  - 6. Maintaining record documents.
  - 7. Electronic data requirements including Electronic O&M manuals and BIM (if applicable).
  - 8. Critical Work sequences.
  - 9. Field decisions and Change Orders.
  - 10. Use of premises, field office, material storage areas, security, housekeeping, and City's needs.
  - 11. Major equipment deliveries and priorities.
  - 12. Design-Builder's assignment for Safety Representative.
  - 13. Discussion of the Safety Plan (See Section 01329 –Safety Plan).
  - 14. Expectations and the Design-Builder's plan for Environmental Protection.
- D. Design-Builder will preside at the conference, will arrange for keeping the minutes and will distribute draft minutes to all persons in attendance within one business day.

#### 1.18 PROGRESS MEETINGS

- A. The Design-Builder shall schedule and hold progress meetings weekly unless mutual agreed upon, and, at other times as requested by the City or as needed by the progress of the Work. The duration of the weekly meetings will mutually agree upon by the City and Design-Builder. The Design-Builder, City, and all Subcontractors active on the Site shall be represented at each meeting. The Design-Builder may, at their discretion, request attendance of their suppliers, manufacturers or other utilities.
- B. The Design-Builder shall preside at the meeting. Meeting minutes shall be prepared and distributed by the Design-Builder after review by the City or Design Professional. The purpose of the meetings will be to review the progress of the Work, maintain coordination of efforts, discuss changes in scheduling and resolve problems which may have developed on the project.
- C. Draft meeting minutes will be distributed within one business day.

- 1.19 SAFETY REPRESENTATIVE
- A. In accordance with Section 00700 DB – General Conditions, Article 6 – Design-Builder’s Responsibilities, the Design-Builder shall submit the name and complete contact information for the person designated as the Safety Representative for the Project.
  - B. In accordance with Section 01300 – Submittals, This information shall be submitted prior to the Preconstruction Conference.
  - C. If the Safety Representative changes during the Project, the Design-Builder shall designate a new person to fulfill the role and submit their name and complete contact information.
- 1.20 SAEFTY PLAN
- A. See Section 01329 – Safety Plan.
- 1.21 SITE ADMINISTRATION
- A. The Design-Builder is responsible for all areas of the site used by their personnel and all Subcontractors in the performance of the Work. The Design-Builder will exert full control over the actions of all employees and other persons with respect to the use and preservation of property and existing facilities, except such controls as may be specifically reserved to Owner or others. The Design-Builder has the right to exclude from the site all persons who have no purpose related to the Work or its inspection and may require all persons on the site to observe the same regulations as their personnel.
- 1.22 CLEAN-UP
- A. The Design-Builder shall conduct cleanup operations in accordance with Section 01566 – Project Cleanup.
- 1.23 SUBSTANTIAL COMPLETION WALKTHROUGH
- A. See Section -00700 DB – General Condition Article 13.05.
  - B. Walkthrough will also include City Employees from the operating division as designed by their Division Manager.
- 1.24 FINAL ACCEPTANCE
- A. Final Acceptance of the Work shall be in accordance with Section 00700 DB – General Conditions, Article 13.
- 1.25 EROSION AND SEDIMENT CONTROL: Not used
- 1.26 STREET LIGHTS AND SITE LIGHTING: NOT USED
- 1.27 PROJECT SIGNS
- A. Work associated with Project signs shall be done in accordance with Section 01580 – Project Signs.
- 1.28 RESTORATION
- A. The Design-Builder shall replace all surface material and shall restore all steel decking, paving, curbs, gutters, sidewalks, driveways, shrubbery, fences, sod, walls, floors, roofs, piping, conduit, cable trays, HVAC equipment, architecture features, drains, gravel, coating systems, fences, tiling, fixtures, masonry, structural supports,

doors, windows, skylights and all other features disturbed to a condition of equal to or better than before the work began, furnishing all material, labor and equipment incidental thereto.

#### 1.29 WATER

- A. The City will furnish, without charge, all water necessary for the Work. The Design-Builder shall make arrangements with the City for all water used.
- B. Use of the City's water facilities shall be at the direction of the Water Services Department so that water is not wasted and service to customers is not impaired.
- C. Any water furnished by the City must be obtained from an existing City main.
- D. The Design-Builder shall use a Reduced Pressure Zone (R.P.Z.) Backflow Preventer and meter when connected to the City's water system.
- E. When utilizing public hydrants, the Design-Builder shall contact the Kansas City Fire Department (KCFD) at (816) 513-4645 to purchase a hydrant meter permit. After securing a hydrant meter permit from KCFD, the Design-Builder shall present the permit to the Consumer Services desk located at Water Services Department headquarters, 4800 E. 63<sup>rd</sup> Street, KCMO. The Design-Builder shall apply for and pay Consumer Services the refundable security deposit. If approved, the Design-Builder shall contact the Water Services Backflow Department at (816) 513-4797 to schedule the installation of the R.P.Z./Meter (hydrant meter). The Design-Builder shall provide the location of the hydrant where the R.P.Z./Meter is to be installed. The Design-Builder shall contact the Backflow Department to have the R.P.Z./Meter moved or returned to Water Services. Jetting and Vacuum trucks with approved backflow prevention devices or air gap separation are not required to utilize a R.P.Z. backflow preventer; however, a meter to track water usage shall be used at all times. The Jetter/Vac Design-Builder shall contact the Water Services Backflow Department for issuance of the meter and pay the associated refundable security deposit. In all cases, the Design-Builder is solely responsible for any and all damage to the equipment issued by the Water Services Backflow Department. The cost to repair the damage or the cost of complete replacement of the unit shall be deducted from the security deposit.
- F. When utilizing hydrants on City projects after the facility's water meter, Design-Builder shall utilize an RPZ/Meter that is pre-approved by the City. The location and duration for the connection must be submitted 15 days prior to the proposed connection. Any unapproved connections will be grounds for removal from the Site(s) by the connecting Subcontractor.
- G. All costs for labor, material, equipment and services needed to obtain water for construction purposes shall be included in the Bid. No separate measurement or payment will be made to make connections.

#### 1.30 OPERATION OF EXISTING VALVES

- A. The Design-Builder shall not operate any valves on the City's system outside the fence line without direct supervision from a Water Services Department representative.
- B. OCCP may allow for the contractor to operate valves and equipment.
- C. If the Design-Builder needs valves operated, the request shall be made at least five (5) days in advance to Water Services for such operation, also giving notice to any affected customers/properties in accordance with the notification requirements outlined in Section 01581 – Public Communications.

- D. All fire hydrants and water valves shall be kept free from obstruction and available for use at all times.

1.31 BARRICADES AND LIGHTS

- A. All streets, roads, highways, facility roads, and other public thoroughfares which are closed to traffic shall be protected by effective barricades and acceptable warning signs. Barricades shall be located per the approved traffic control plan and associated permit. RPR will approve the barricades for facility roads.
- B. All trenches and other excavations shall be covered and shall have suitable barricades, signs and lights to provide adequate protection to the public and City Staff. Obstructions such as material piles and equipment shall be provided with similar warning signs and lights in roads.
- C. All barricades and obstructions shall be illuminated with warning lights from sunset to sunrise in the public right of way. Material storage and execution of the Work on or alongside public streets and highways shall cause the minimum obstruction and inconvenience to the traveling public.
- D. All barricades, signs, lights and other protective devices shall be installed and maintained in conformity with applicable statutory requirements and as required by the authority having jurisdiction; such as, Work within railroad right-of-way, highway right-of-way, etc.

1.32 EXISTING FENCING

- A. All existing fences affected by the Work shall be maintained by the Design-Builder until completion of the Work. Fences which interfere with construction operations shall not be relocated or dismantled until written permission is obtained from the owner of the fence including the City and the period the fence may be left relocated or dismantled has been agreed upon.
- B. Where fences must be maintained across the construction easement or plant site, adequate gates or City approved access shall be installed. Facility Gates and Gates outside facilities shall be kept closed and locked at all times when not in use. Within Facilities, operations staff will determine what gates will need to be close and locked.

1.33 SAFETY FENCING

- A. Provide fencing along the construction site at all open excavations and tunnels to control access if the excavation or tunnel can otherwise be accessed by the public.
- B. Temporary safety fencing must be a high visibility orange colored, high density polyethylene grid or approved equal, a minimum of 48 inches high and maximum mesh size of 2 inches, supported and tightly secured to steel posts located on maximum 10-foot centers, constructed at the approved location.
- C. Remove the fence from the work site upon completion of the Work.

1.34 PROTECTION OF PUBLIC AND PRIVATE PROPERTY

- A. The Design-Builder shall protect, shore, brace, support, and maintain all underground pipes, conduits, drains and other underground construction uncovered or otherwise affected by the construction operations.
- B. All steel decking, pavement, surfacing, driveways, curbs, gutters, sidewalks, buildings, utility poles, guy wires, fences, and all other features and structures affected by construction operations, together with all sod and shrubs in yards, parkways, medians and green spaces, shall be restored to their original condition,



whether within or outside the right-of-way or easement. All replacements shall be made with new materials.

1.35 DAMAGE TO EXISTING PROPERTY

- A. The Design-Builder is solely responsible for any damage to existing features, structures, Work, materials, or equipment because of their operations and shall repair or replace any damaged features, structures, Work, materials, or equipment to the satisfaction of the City and at no additional cost to the City.
- B. The Design-Builder shall protect all existing structures and property from damage and shall provide bracing, shoring, or other work necessary for such protection.
- C. The Design-Builder is responsible for all damage to streets, roads, curbs, sidewalks, highways, shoulders, ditches, embankments, culverts, bridges, or other public or private property, which may be caused by transporting equipment, materials, or personnel to or from the Work. The Design-Builder shall make satisfactory and acceptable arrangements with the agency having jurisdiction over the damaged property concerning its repair or replacement.

1.36 NOISE CONTROL

- A. The Design-Builder shall conduct construction operations as described herein and in compliance with the City of Kansas City, Missouri Code of Ordinances, Chapter 46 – NOISE CONTROL.
- B. The Design-Builder shall take all reasonable measures to avoid unnecessary noise. Such measures shall be appropriate for the normal ambient sound levels in the area during working hours. All construction machinery and vehicles shall be equipped with practical sound-muffling devices and operated in a manner to cause the least noise, consistent with the efficient performance of the Work.
- C. During construction activities on or adjacent to occupied buildings and when appropriate, the Design-Builder shall erect screens or barriers effective in reducing noise in the building and shall conduct their operations to avoid unnecessary noise which might interfere with the activities of the building occupants.
- D. Design-Builder shall insure no facilities will have noise levels that prevent a full shift at the facility per OSHA safety standards.
- E. All work including, but not limited to, excavation, demolition, alteration, or repair being performed in or adjacent to a residential area other than between the hours of 7:00 a.m. and 6:00 p.m. on weekdays, except in the case of urgent necessity in the interest of public safety, shall require a letter of permission from the Water Services Department of the City of Kansas City, Missouri.

1.37 DUST CONTROL

- A. The Design-Builder shall control dust in accordance with Section 01566 – Cleanup Operations, paragraph DUST CONTROL. The Design-Builder shall take all reasonable measures to prevent unnecessary dust. Surfaces subject to dusting shall be kept moist with water or by the approved application of an approved chemical suppressant. When practicable, dusty materials in piles or in transit shall be covered to prevent blowing.
- B. Buildings or operating facilities which may be affected adversely by dust shall be adequately protected from dust. Existing or new machinery, motors, instrument panels, or similar equipment shall be protected by suitable dust screens. Proper ventilation shall be included with dust screens.

1.38 POLLUTION CONTROL

- A. The Design-Builder shall prevent the pollution of drains (Combined Sewer, plant piping, Storm Sewer), and watercourses by sanitary wastes, sediment, debris or other substances resulting from the construction activities. No sanitary wastes will be permitted to enter any drain or watercourse other than sanitary sewers. No sediment, debris, or other substance will be permitted to enter sanitary sewers and all reasonable measures will be taken to prevent such materials from entering any drain or watercourse.

1.39 SECURITY

- A. The Design-Builder is solely responsible for security and protection of the site. This includes protecting all Work, materials, equipment, existing facilities and all temporary facilities against theft, vandals and access by unauthorized persons.
- B. No claim shall be made against the City by reason of an act of an employee or trespasser. The Design-Builder shall make good on all damage and theft of property resulting from the Design-Builder's failure to provide adequate security measures including City Property. After trespass or theft, the City may direct the Design-Builder to provide additional site security at no cost including but not limited to security cameras, on site security, and night security.

1.40 PARKING

- A. The Design-Builder shall provide and maintain suitable parking areas for the use of all City personnel, construction workers and others performing work or furnishing services in connection with the Project. Suitable parking is required to avoid the need for parking personal vehicles where they may interfere with traffic, City's operations, or construction activities. Location of the parking within Facilities should be mutually agreed up by the operating division manager and the Contactor or Design-Builder. Operating Division Manager may change parking areas as need to maintain operations

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

## SECTION 01019 – CLOSEOUT PROCEDURES

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

- A. General provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.
- B. Related Sections include the following:
  - 1. Section 00700 DB – Design-Build General Conditions.
  - 2. Section 00800 DB– Supplementary Conditions.
  - 3. Section 01020 – Record Documents.
  - 4. Section 01100 – Summary of Work
  - 5. Section 01140 – Work Restrictions.
  - 6. Section 01300 – Submittals.
  - 7. Section 01320 – Construction Progress Documentation.
  - 8. Section 01322 – Photographic and Video Documentation.
  - 9. Section 01335 – Document Management.
  - 10. Section 01433 – Manufacturers’ Field Services.
  - 11. Section 01757 – Commissioning.
  - 12. Section 01783 – Operation and Maintenance Data
  - 13. Section 01800 – Operational Change Control Plan.
  - 14. Section 01900 – Contract Closeout
  - 15. Section 01914 – Equipment Testing and System Startup.

#### 1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Inspection procedures.
  - 2. Submittals.
  - 3. Final cleaning.

#### 1.03 SUBMITTALS

- A. All Substantial Completion documents shall be submitted at least 14 calendar days prior to Substantial Completion inspection request.
  - 1. Specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  - 2. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  - 3. Prepare and submit Project Record Documents, final operation and maintenance manuals, Record Documents, damage or settlement surveys, property surveys, and similar final record information.
  - 4. Submit specific warranties, workmanship bonds, maintenance service agreements, and similar documents in accordance with this Section.
  - 5. Submit all manufacturers’ certificates in accordance with Section 01433 Manufacturers’ Field Services.

6. Submit Final Original Equipment Manufacturer Operations & Maintenance (OEM O&M) Manuals for all equipment and materials furnished as part of the Work of the Project.
  7. Prepare and submit draft Facility O&M Data and the draft Electronic O&M Manual in accordance with the requirements of this Section.
  8. Submit approved Acceptance Test Plan developed in accordance with Section 01757 Commissioning and with this Section.
  9. Deliver tools, spare parts, extra material, and maintenance products in accordance with Section 01600 Product Delivery Storage and Handling.
  10. Submit changeover information related to Owner's use, operation, and maintenance.
  11. Prepare and submit draft Project Record Documents prepared in accordance with Section 01700 Execution Requirements and submitted in accordance with the requirements of this Section.
- B. All Final Completion documents shall be submitted at least 14 calendar days prior to Final Completion inspection request. Before requesting a final inspection to determine the date of Final Completion, complete the following:
1. Submit a certified copy of the City's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by the City. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  2. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
  3. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Final operations and maintenance manuals must be provided for the training sessions.
  4. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects. Surfaces which cannot be touched-up or repaired satisfactorily, shall be refinished or replaced.
  5. Submit changeover information related to Owner's use, operation, and maintenance.
  6. Submit final O&M Data, including the final electronic O&M in accordance with the requirements of this Section.
  7. Submit Final Building Information Model incorporating all as-built information in accordance with Section 01340 Building Information Modeling Requirements.
  8. A written request for final inspection for acceptance requirements.
  9. Submit a final Application for Payment according to Section 01290.

#### 1.04 WARRANTIES

- A. Submit written warranties on request of Owner for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Partial Use: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and used by Owner during construction period by separate agreement with Design-Builder.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
  1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
  2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or

installation, including the name of the product and the name, address, and telephone number of Installer.

3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor or Design-Builder.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.
- E. Provide additional copies of each warranty as a separate pdf file.
- F. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

#### 1.05 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining the date of Substantial Completion, the Design-Builder shall comply with all conditions in Supplementary Conditions and complete the following. List items below that are incomplete in request.
1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
  2. Deliver salvaged material and similar items to location designated by the Owner. Label with manufacturer's name and model number where applicable.
  3. Complete Installation and Functional Testing of all equipment, systems and subsystems in accordance with Section 01757 Commissioning.
  4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems in accordance with Section 01757 Commissioning.
  5. Clean the project area of construction debris and other construction effects.
  6. Terminate and remove temporary facilities from the Project site, along with mockups, construction tools, and similar elements.
  7. Complete final cleaning requirements, including touchup painting.
  8. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
  9. Prepare and submit all required Submittals as specified herein.
- B. Inspection: Submit a written request for Substantial Completion inspection. On receipt of request, the Engineer will either proceed with inspection or notify Design-Builder of unfulfilled requirements. The Design-Builder will prepare the Certificate of Substantial Completion after inspection by the City. A list will be compiled with additional items identified by the City which must be completed or corrected before certificate will be issued.
1. Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
  2. Results of completed inspection will form the basis of requirements for Substantial Completion.
  3. Following completion of all items above and all requirements for Substantial Completion included in the Supplemental Conditions 00800, the Owner will complete Form 01290.02 Certificate of Substantial Completion and distribute to the Design-Builder.

#### 1.06 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining the date of Final Completion, complete the following:

1. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Final operations and maintenance manuals must be provided for the training sessions.
  2. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects. Surfaces which cannot be touched-up or repaired satisfactorily, shall be refinished or replaced.
  3. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects. Surfaces which cannot be touched-up or repaired satisfactorily, shall be refinished or replaced.
  4. Prepare and submit all required Submittals as specified herein.
- B. A written request for final inspection for acceptance must be provided to the Design-Builder. Upon receipt of request, City will either proceed with inspection or notify Design-Builder of unfulfilled requirements. City will prepare a final Certificate for Payment after inspection or will notify Design-Builder of construction that must be completed or corrected before certificate will be issued.
1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected. The Design-Builder shall pay for any re-inspection other than the first re-inspection.
  2. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."

#### 1.07 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Design-Builder shall prepare and submit three copies of punch list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Design-Builder that are outside the limits of construction. The Design-Builder shall use the standard Water Services form for all items.
1. Organize a list of spaces in sequential order,
  2. Organize items applying to each space by major element, including category equipment, and building systems.
  3. Include the following information at the top of each page:
    - a. Project Number
    - b. Project name.
    - c. Date.
    - d. Name of Design-Builder.
    - e. Page number.

#### PART 2 - PRODUCTS (NOT USED)

#### PART 3 – EXECUTION

##### 3.01 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with the manufacturer's written instructions.
- C. Complete the following cleaning operations before requesting inspection for certification of Final Completion for entire Project or for a portion of Project:

1. Clean Project site and grounds, in areas disturbed by construction activities, of rubbish, waste material, litter, and other foreign substances.
  2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
  3. Remove tools, construction equipment, machinery, and surplus material from the Project site.
  4. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, and similar spaces.
  5. Sweep concrete floors broom clean in unoccupied spaces.
  6. Remove labels that are not permanent.
  7. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already shows evidence of repair or restoration.
- D. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
1. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
  2. Clean ducts and blowers if units were operated without filters during construction.
  3. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
  4. Leave Project clean and ready for use.
- E. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the Project site and dispose of lawfully.

END OF SECTION

## **SECTION 01020 – RECORD DOCUMENTS**

### **PART 1 - GENERAL**

#### **1.01 SUMMARY**

- A. Design-Builder shall maintain, in a safe place at the Site, one updated record copy of all Drawings, Standards and Specifications, Addenda, Shop Drawings, Requests for Interpretation (RFIs), Requests for Proposal (RFPs), Work Change Directives (WCDs), Change Orders, other written interpretations or clarifications of the contract documents, survey information (including approved cut sheets) and all other documents relevant to the Work.
- B. All such documents shall be kept in order, good condition and shall be continuously updated to indicate all work installed and all changes made during construction.
- C. No work shall be allowed in the absence of these record documents.
- D. This document also outlines electronic data requirements and defines the survey requirements for the development of Field-Marked Drawings, As-Built Drawings and Conforming to Construction Drawings, as needed.

#### **1.02 RELATED SECTIONS**

- A. Section 00700 DB – General Conditions.
- B. Section 01019 – Closeout Procedures.
- C. Section 01020 – Record Documents.
- D. Section 01140 – Work Restrictions.
- E. Section 01300 – Submittals.
- F. Section 01320 – Construction Progress Documentation.
- G. Section 01322 – Photographic and Video Documentation.
- H. Section 01335 – Document Management.
- I. Section 01757 – Commissioning.
- J. Section 01783 – Operation and Maintenance Data.
- K. Section 01800 – Operational Change Control Plan.
- L. Section 01914 – Equipment Testing and System Startup

#### **1.03 CODES AND STANDARDS**

- A. CAD Standards – KC Water CAD Standards.

#### **1.04 DEFINITIONS**

- A. Drawings – As defined by Section 00700 DB – General Conditions.
- B. Approved for Construction Drawings – Any drawing or sketch that has been issued to the Design-Builder by the City for the purposes of constructing the Work. These include, but are not limited to, the following: Drawings, revisions to the Drawings, information issued as part of change orders and information issued as part of work change directives.
- C. Field-Marked Drawings (Red Line Markups) – A copy of the Approved for Construction Drawings that is maintained and updated daily by the Design-Builder during construction clearly detailing all work completed and depicting all changes made to the Work during construction.
- D. As-Built Drawings – The completed Field-Marked Drawings that include the signed certification language from both the Design-Builder and Surveyor.



- E. Conforming to Construction Drawings – The Approved for Construction Drawings that have been revised to reflect the changes noted on the As-Built Drawings. For these drawings, the CAD files are updated, revision block is updated, and a new set of drawings is created.
- F. Record Drawings – All drawings used or developed as part of the Work. Record Drawings include, but are not limited to, the following: Approved for Construction Drawings, Field-Marked Drawings, As-Built Drawings and Conforming to Construction Drawings.
- G. Record GIS – GIS files containing the site piping work completed in this project that has been created per KC Water Standards.
- H. Record Documents – As defined by this Section, Section 01015 and Section 00700 DB – General Conditions, Article 6 Design-Builder’s Responsibilities including but not limited to updated BIM, Electronic O&M Manual, OEM O&M, Record Photos, Final Submittals, SOPs, SIs, and any other specified submittals.

#### 1.05 INFORMATION PROVIDED BY THE CITY

- A. The City will provide the Design-Builder a border template to be used for all issued Construction Drawings in an electronic/CAD format, if needed.

#### 1.06 SUBMITTALS

- A. Submit as specified in Section 01300 – Submittals.
- B. Warranties and Bonds.
- C. For each item of material or equipment furnished under the Contract.
- D. Submittals include, but are not limited to, the following:
  - 1. Warranties as specified herein.
  - 2. As-Built Drawings.
  - 3. Conforming to Construction Drawings.
  - 4. Electronic Submittals:
    - a. All electronic deliverables (drawings, coordinates table, etc.) shall be made through the approved document management system. See Section 01335 – Document Management.
  - 5. As-Built Drawings:
    - a. One (1) hard copy on paper for review and approval.
    - b. One (1) electronic copy in PDF format.
    - a. One (1) electronic copy in the latest version of AutoCAD® .dwg format.
  - 6. Conforming to Construction Drawings:
    - a. One (1) signed, sealed and certified hard copy on Mylar or Vellum.
    - b. One (1) signed, sealed and certified hard copy on paper.
    - c. One (1) signed, sealed and certified electronic copy in PDF format.
    - d. One (1) signed, sealed and certified electronic copy in the latest version of AutoCAD® .dwg format.
  - 7. All Record Documents including those listed in the referenced Sections:
    - a. Submit Record Documents in accordance with Section 00700 DB – General Conditions, Article 13 – Payments to the Design-Builder and Completion.
    - b. The following shall be submitted for Record Documents:
      - i. One (1) hard copy on paper.
      - ii. One (1) electronic copy in PDF format.
      - iii. As specified in other sections.
      - iv. Electronic (PDF) Documents:
        - v. Documents shall be full scale.
        - vi. Markups shall be noted in RED.

vii. Minimum resolution shall be 600 dpi.

#### 1.07 WARRANTY

- A. Warranties and Bond are Record Documents.
- B. CITY has the right to reject warranties.
- C. CITY reserves the right to reject Work for the Project if the required warranties have not been provided.
- D. Submit form of manufacturer's warranty prior to fabrication and shipment of the item from the manufacturer's facility.
- E. Submit form of manufacturer's special warranty when specified.
- F. Provide consolidated warranties and bonds within 15 calendar days of Substantial Completion.
- G. Contents:
  - 1. Organize warranty and bond documents:
  - 2. Include Table of Contents organized by specification section number and the name of the product or work item.
  - 3. Include each required warranty and bond in proper form, with full information, are certified manufacturer as required, and are properly executed by Design-Builder, or subcontractor, supplier, or manufacturer.
  - 4. Provide name, address, phone number, and point of contact of manufacturer, supplier, and installer, as applicable.
- H. Warranty submittal format:
  - 1. Submit two (2) hardcopies.
  - 2. Hardcopies shall be assembled in 3 D-side ring binders with durable cover.
  - 3. Identify each binder on the front and spine clearly labeling the following:
    - a. Warranties and Bonds.
    - b. Project Name or Title.
    - c. Name, Address, and Telephone Number of the Design-Builder.
  - 4. Submit one (1) electronic copy in PDF format.
  - 5. The Record Documents shall be an integral part of the work guaranteed by the Design-Builder's Performance and Maintenance Bond. If during the three-year maintenance period the City determines that further revisions or corrections are necessary to make the Record Documents accurate, the Design-Builder shall make or cause the revisions or corrections to be made at no additional cost to the City.

#### 1.08 QUALITY ASSURANCE

- A. The Design-Builder is responsible for the quality assurance and quality control of the Work.

### PART 2 – PRODUCTS – NOT USED

### PART 3 – EXECUTION

#### 3.01 SURVEY REQUIREMENTS

- A. All field books, notes, videotapes and other data developed by the Design-Builder in performing required surveys as part of the Work shall be available to the City for examination throughout the

construction period. All such data shall be submitted to the City with the other documentation required for final acceptance of the Work.

B. General Requirements:

1. The Design-Builder shall provide survey grade information for the locations and elevations of the Work as described herein. Surveys shall be conducted by a Professional Land Surveyor, licensed in the State of Missouri.
2. Vertical Datum – All elevations shall be indicated in North American Vertical Datum of 1988 (NAVD 88) in feet and decimals of a foot.
3. Horizontal Control – Coordinates shall be referenced to the North American Datum of 1983 (NAD 83), State Plane Missouri West Zone FIPS 2403 US Feet coordinate system, Kansas City Metro Control. Statewide Missouri Geographical Reference System monuments, Project monuments and Certified Land corners shall be used as references to determine State Plane coordinates. All control monuments used in the survey work shall be listed with reference ties and shown on the Record Drawings.
4. Water Systems:
  - a. Fire Hydrant Assemblies – Provide survey point (location and elevation) at the top of the operating nut for each fire hydrant.
  - b. Fittings – Provide survey point (location and elevation) at the center of each fitting (i.e. bends, tees, valves, etc.). Survey shall be taken at the top of the fitting. Provide the elevation of finished grade or improvements at the top of the fitting.
  - c. Pipe Profile – Provide survey points (location and elevation) at the center point of all piping at a maximum spacing of 50 feet. Survey shall be taken on the top of the pipe. At the same location, provide the elevation of finished grade.
  - d. Valves, Valve Vaults, Meter pits and Other Structures – A survey is required to verify the location of all new valves, valve vaults, meter pits or other structures. The survey shall include, but is not limited to, the following:
    - (i) Location of the Structure – Provide coordinates for the center of the access cover.
    - (ii) Top elevation – Provide the top elevation of the structure at the center of the access cover.
5. Wastewater Systems:
  - a. Location – Verify the “Locating Point” shown on the Approved for Construction Drawings or standard detail. Verify all coordinate data shown on the Approved for Construction Drawings. If no such information is provided, the Locating Point shall be the center of the manhole cover.
  - b. Top Elevation. – Provide the elevation of the top of the structure at the Locating Point.
  - c. Pipe Inverts – Provide the invert elevation and flow direction of all pipes that penetrate the structure (flowline in - FL IN) and exit the structure (flowline out - FL OUT).
  - d. Manhole Invert – Provide the elevation of the invert at the center of the manhole if different than the pipe inverts.
6. Existing Manholes – A survey is required to verify the location of all existing manholes that are modified as part of the Work. The survey shall include, but is not limited to, the following:
  - a. Location of the Structure – Verify the “Locating Point” shown on the Approved for Construction Drawings or standard detail. Verify all coordinate data shown on the Approved for Construction Drawings. If no such information is provided, the Location Point shall be the center of the manhole cover.
  - b. Top Elevation – Provide the elevation of the top of the structure at the Locating Point.
  - c. Pipe Inverts – Provide the invert elevation and flow direction of all pipes that penetrate the structure (flowline in - FL IN) and exit the structure (flowline out - FL OUT).

- d. Manhole Invert – Provide the elevation of the invert at the center of the manhole if different from the pipe inverts.
- 7. Storm Water and Green Infrastructure Systems:
  - a. A survey is required to verify the location of all new Green Infrastructure, Storm Water Structures, Junction Boxes, Manholes, Inlets and all other related structures. The survey shall include, but is not limited to, the following:
    - b. Location of the Structure – Verify the Locating Point shown on the Approved for Construction Drawings or standard detail. Verify all coordinate data shown on the Approved for Construction Drawings. The locating point for curb inlets is center of inside face of inlet wall. If no other locating information is provided for other structures, the Locating Point shall be the center of the access cover.
    - c. Top Elevation – Provide the elevation of the top of the structure at the Locating Point.
    - d. Pipe Inverts – Provide the invert elevation and flow direction of all pipes that penetrate the structure (flowline in - FL IN) and exit the structure (flowline out - FL OUT).
    - e. Manhole or Structure Invert – Provide the elevation of the invert at the center of the manhole or structure if different than the pipe inverts.
- 8. Culvert - A survey is required to verify the location of new culverts. The survey shall include, but is not limited to, the following:
  - a. Location – The Locating Points shall be the center line of each culvert barrel at the upstream and downstream end of each. The location of each culvert barrel is to be provided.
  - b. Invert – Provide the upstream and downstream invert elevation of each culvert barrel.
- 9. Channels and Ditches:
  - a. Profile – Provide survey points (location and elevation) at the upstream and downstream end of the channel and along the channel at a maximum 50-foot intervals and at all bends and changes in alignment.
  - b. Survey points shall be taken at finished grade at the centerline, toes of side slopes or walls and top elevation of the high flow channel on both sides of the channel. If water is present in the channel or ditch, provide water surface elevation on both sides of the channel.
- 10. Detention Areas:
  - a. For any surface feature designed to detain or retain storm water runoff (i.e., detention basins, rain gardens, bio-retention cells, etc.) an as-built survey of the feature is required.
  - b. Enough survey points shall be taken to generate 1-foot contours of the detention or retention area and any containment berms.
  - c. Provide survey points (location and elevation) for both ends of weirs, all weir high and low points (if top of weir is not level) and other flow control structures, inlets and outlets.
  - d. Provide survey points (location and elevation) for both ends of weirs and all weir high and low points (if top of weir is not level) of the principle spillway structure.
- 11. Facility Site Assets:
  - a. Site Assets shall be documented to the same level of detail as other assets (water, wastewater etc..).
  - b. Assets include all buried infrastructure in the project including but not limited to duct banks, conduit, chemical piping, casings, gravity sewers, process piping, etc.

### 3.02 FIELD-MARKED DRAWINGS

- A. The Design-Builder shall continuously maintain a set of Field-Marked Drawings which details all work completed and shows all changes or deviations made by the Design-Builder from the Approved for Construction Drawings. Where the Approved for Construction Drawings are not detailed and allow for flexibility during construction, the Design-Builder shall include the detailed information on

how the Work was constructed. These adjustments shall include, but are not limited to, field adjustments and change orders.

- B. Field-Marked Drawings shall be prepared using survey grade information to show the horizontal and vertical location of the Work after completion of construction. Connection details may be sketched using field run measurements.
- C. Mark new information that is not shown on Drawings or Shop Drawings.
- D. Include the following:
  - a. Field changes of dimension and detail.
  - b. Change Order modification. Note related Change Order numbers where applicable.
  - c. RFI modification. Note related RFI numbers where applicable.
  - d. Details not on original Drawings.
  - e. Horizontal and vertical location of all underground utilities and all other concealed elements that would be difficult or costly to maintain the installed asset long term.
- E. Precision of Measurement:
  - a. Where survey measurements are not required (sketching connection details) – elevations, stationing, distances and measurements shall be expressed to the nearest 0.10 foot.
  - b. All other Work requires survey information – elevations, station, distances and measurements shall be expressed to the nearest 0.01 foot.
  - c. Field changes or additions shall be designated in RED. Hard copy and electronic (PDF) deliverables shall be provided in color.
  - d. Information shall be clearly distinguishable on hard copy mark-ups and in the electronic files.
- F. If the Design-Builder observes inaccurate information pertaining to existing conditions, the correct information shall be noted in the Field-Marked Drawings.
- G. NOT USED.

### 3.03 AS-BUILT DRAWINGS

- A. Upon completion of the Work and before the Application for Final Payment, the Design-Builder shall prepare the As-Built Drawings by completing annotations to the Field-Marked Drawings and adding the required certification statements.
- B. Surveyor's Certification:
  - 1. Each drawing shall be modified to include a certification statement and signature block as described below.
    - a. Water Systems

Each sheet of these Record Drawings and attached Survey Cut Sheets for the Work have been reviewed and approved by the Professional Land Surveyor whose seal is affixed to this Record. The horizontal control, coordinates and elevations shown on these Records are accurate and are based on the Missouri Coordinate System of 1983, West Zone and NAVD88 datum, with the date of adjustment. These Records have been revised, as required in Section 01000, 1.20 of the Standards and Specifications for Water Main Extensions and Relocations, under my personal supervision to show the true and accurate measurements of the work as it was actually constructed.

- b. Wastewater, Storm Water and Green Infrastructure Systems

Each sheet of these Record Drawings, Record Models and attached Survey Cut Sheets for the Work have been reviewed and approved by the Professional Land Surveyor whose seal is affixed to this Record. The horizontal control coordinates and elevations

shown on these Records are accurate and are based on the Missouri Coordinate System of 1983, West Zone and NAVD88 Datum. These Records have been revised under my personal supervision to show the true and accurate measurements of the work as it was actually constructed.

2. Every sheet of the Field-Marked Drawings must be reviewed, signed and sealed by a Professional Land Surveyor, licensed in the State of Missouri and must include the following statement on the title block inside the box marked "for WSD use" and near the Surveyor's professional license seal.

C. Design-Builder's Certification:

1. Each drawing shall be modified to include a certification statement and signature block as described below:

Water Systems

*I hereby certify that this Record correctly depicts the Work constructed as to size, material, horizontal location, vertical location and finished grade as shown on the approved construction drawings or their revision. The Work was done in accordance with these Records and the current version of the Standards and Specifications for Water Main Extensions and Relocations.*

Contractor: \_\_\_\_\_ Date: \_\_\_\_\_

Name \_\_\_\_\_ Title: \_\_\_\_\_  
(print): \_\_\_\_\_

Signature: \_\_\_\_\_

Wastewater, Storm Water and Green Infrastructure Systems

*I hereby certify that this Record correctly depicts the Work constructed as to size, material, horizontal location, vertical location, grade of installed piping systems and finished grade as shown on the approved construction drawings or their revision. The Work was done in accordance with these Records.*

Contractor: \_\_\_\_\_ Date: \_\_\_\_\_

Name \_\_\_\_\_ Title: \_\_\_\_\_  
(print): \_\_\_\_\_

Signature: \_\_\_\_\_

- a. The Design-Builder shall provide certification that the Field-Marked Drawings reflect the conditions that were constructed.
  - b. The Design-Builder shall review the Field-Marked Drawings and verify all information is accurate. The Design-Builder shall verify that all changes to the Work have been documented. The Contractor or Design-Builder shall sign each sheet of the Record Drawings with the following certification(s):
- D. Submittals – Submit As-Built Drawings in accordance with paragraph SUBMITTALS. As-Built and Conforming to Construction Drawings must be approved by the City before the Design-Builder submits the Application for Final Payment.
1. Mark each document "AS-BUILT DRAWINGS" in neat, large print letters.
  2. The cover sheet of the project shall be included. The cover sheet shall include all required As-Built certifications and shall clearly show that the drawings are AS-BUILT.

### 3.05 RECORD MODEL

- A. BIM model of the structure constructed or modified during this project.
- B. Record Model should be per KC BIM standards with Record documents and drawings linked.
- C. All BIM files and associated files shall be tagged according to Record File Standard.

### 3.06 CONFORMING TO CONSTRUCTION DRAWINGS AND MODEL

- A. Conforming to Construction Drawings shall be submitted and accepted by the City before the Design-Builder may submit the Application for Final Payment.
- B. The Design-Builder shall edit the CAD drawings to reflect the changes shown on the As-Built Drawings. All line work and text shall be revised and edited to accurately reflect the information provided in the As-Built Drawings. Line work shall be drawn to scale in the coordinate system and datum specified herein.
- C. Version – CAD drawings shall be developed and submitted in the latest version of AutoCAD® .dwg format or AutoCAD® Civil 3D.
- D. CAD Standards – Comply with KC Water CAD Standards.
- E. GIS Standards – Comply with KC Water GIS Standards.
- F. The cover sheet of the project shall be included. The cover sheet shall include all required as-built certifications and shall clearly show that the drawings are as-built.
- G. Conforming to Construction Drawings shall have a “CONFORMED TO CONSTRUCTION” label clearly and prominently shown on each sheet, preferably in the lower right-hand corner of the drawing.
- H. Conforming to Construction Drawings shall be labeled with the following information:
  - 1. Project Name.
  - 2. WSD Project Number.
  - 3. WSD Work Order Number.
  - 4. WSD Drawing Number.
  - 5. CMMS Assets.
  - 6. Date of publication.

### 3.07 OTHER RECORD DOCUMENTS

- A. As defined by Section 00700 DB – General Conditions, Article 6 – Design-Builder’s Responsibilities. Section 01021 – Operation and Maintenance Data, Section 01300 –Submittals, Section 01320 – Construction Progress Documentation, Section 01322 – Photographic and Video Documentation, Section 01757 – Commissioning, etc...
- B. GIS Data of Site Piping.
- C. Coordinates Table – Provide a Microsoft Excel spreadsheet that contains the coordinates of every asset installed or adjusted as part of the Work.
- D. Survey Cut Sheets.
- E. NOT USED.

END OF SECTION

## SECTION 01100

### SUMMARY OF WORK

#### PART 1 - GENERAL

##### 1.01 SUMMARY

- A. This Section provides a general overview of the contract work.
1. The Design-Builder shall furnish all labor, materials, equipment, and incidentals as necessary to comply with these requirements and restrictions.
- B. Project Identification:
1. Project Location: The Blue River Wastewater Treatment Plant (WWTP), 7300 Hawthorne Road, Kansas City, Jackson County, Missouri.
  2. Owner: Water Services Department, City of Kansas City, Missouri
- C. The Contract Documents for this Project have been prepared by the Facilities Engineering Division, Water Services Department, City of Kansas City, Missouri and General Services, City of Kansas City, Missouri. Wherever referred to herein, the term "City's Representative" shall mean the Water Services Department representative appointed to this project or other person so appointed by the Water Services Department.
- D. Project Manager: KCMO WSD, Mr. Kevin White, PE, Environmental/Civil  
Facilities Engineering Division: Mr. Blake Anderson, PE, Facilities Division Head  
  
Wastewater Treatment Division Mr. Brent Herring, Deputy Director  
Manager:
- E. Work Details. The work to be performed under this contract consists of but not limited to furnishing all labor, materials, supplies, equipment, tools, appurtenances, superintendence, project management, engineering/design services, design/construction plans, and all services necessary to perform the work.
- F. The Work includes, but is not necessarily limited to, the following major tasks:
1. Provide all engineering services to design, abate, test, and replace and re-coat equipment. Include all necessary work plans, drawings, additional specifications and notifications to complete the work.
  2. Complete all required notifications prior to commencement of the work, and coordinate schedule of work with Blue River WWTP.
  3. Remove existing platform decking and vacated office space to allow overhead access to the pipes during completion of the work. Decking will be re-installed upon the completion of the work.
  4. Remove and abate asbestos-containing materials (ACM) from the two 60-inch pipes, nuts, and studs, as indicated in the Contract Drawings and Sections. There is approximately 2,000 linear feet of cast iron pipe, 12,000 nuts, and 6,000



studs. Appropriate air control, air monitoring, personal protective equipment (PPE) and containment will be required.

1. Means and methods to remove and abate ACM will be provided by Design-Builder with their bid to complete this work.
5. In accordance with all applicable standards and as outlined in Appendix B, perform non-destructive pipe testing to determine pipe wall thickness of both 60-inch pipes.
6. In accordance with all applicable standards and as outlined in Appendix B, perform transient pressure monitoring and finite element analysis for both 60-inch pipes.
7. Replace all studs and nuts. The system is to remain operational throughout the course of completing this work. Replacement of studs and nuts will be sequenced, as such, to achieve this requirement.
8. Both pipes will be cleaned after ACM removal to remove any residual ACM and once more prior to the start of the re-coating to promote coating adhesion.
9. Apply a high performance coating to pipes, nuts, and studs. Coating selected will be appropriate for application and performance in cool, damp environments, and as specified in Section 09960.
10. Provide all records to KCMO WSD generated throughout the course of this work, including but not limited to, ACM waste disposal records, air monitoring records, and equipment calibration logs.

G. Milestones:

1. Prepare preliminary construction (50% minimum) drawings, basis of design report, and any additional specifications for review and approval by KCMO WSD staff. Preliminary construction drawings shall be to the same scale and on the same drawings size as the final detailed construction drawings. Preliminary drawings and any additional specifications due 60 calendar days after issuance of NTP.
  - a. Provide 10 copies, half size, of the preliminary construction drawings and additional specifications for review by KCMO WSD. KCMO WSD to provide comments with 10 business days of delivering preliminary drawings.
2. Prepare final detailed construction (100%) drawings, any corresponding plans, and additional specifications for Design-Builder to complete the work. Final drawings and other documents due 120 calendar days after issuance of NTP.
  - a. Provide 5 copies, half size, of the final construction drawings and any additional specifications for KCMO.
3. All design, abatement, and coating to be finalized and substantially complete as indicated in these Contract Documents. Due to condensation concerns associated with high humidity on equipment in the Work area, coating of the two 60-inch pipes, studs, nuts and other abated equipment must be completed in between September and October or Design-Builder shall control site conditions to allow for application of the high performance coating system in accordance with all manufacturers and supplier's application instructions and requirements and other work activities.

- 4. Finish all punchlist items and any other work associated with the Contract within 60 days after Substantial Completion.
- H. Design-Builder to measure and determine all necessary volumes, areas, dimensions, and quantities. Any dimensions, volumes, areas, and quantities listed on any drawings prepared by KCMO, reports prepared by/for KCMO, or in the specifications prepared by KCMO are for **reference only**.
- I. Provide **one set of Mylar “Record Prints” drawings**. Refer to “Project Records Documents”, Section 01020.
- J. Many locations have confined spaces. Take proper safety precautions to provide proper and safe working environment.
  - 4. Make sure electrical equipment is designed per NEC in explosion proof enclosures as required for these areas.
- L. Provide all Project Record Documents including electronic version of “Record Prints” as indicated within the specifications. Refer to Section 01020.
- M. Provide all Manufacturers’ Field Services, Project Record Documents, Warranty Documents, Operation and Maintenance Data, and Equipment and System Startup Data as indicated within the specifications. Refer to Sections 1020, 01433, 01783, and 01914.

1.02 CONTRACT

- K. Project will be constructed under a Design-Builder construction contract.
- B Proper bid and contract forms including but not limited to Bid Bond, Performance and maintenance Bonds, Payment Bonds, and Insurance Certificate must be used. **AIA forms are NOT acceptable**. Failure to use proper forms **may** invalidate your bid.

1.03 RELATED DOCUMENTS

- K. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.
- L. Original drawings and modification drawings for the Blue River WWTP are available for review at Water Services Headquarters located at 4800 East 63<sup>rd</sup> Street, Kansas City, Missouri 64130.

1.04 SPECIAL REQUIREMENTS

- K. Operational Requirements. Design-Builder shall schedule and conduct the work in accordance with the following requirements:
  - 3. Design-Builder shall be responsible for all safety precautions necessary to perform the work, including but not limited to adequate ventilation, gas detection,

lighting, and personnel harnesses and safety lines when necessary, in accordance with General Conditions, paragraph 6.11 and as per OSHA requirements.

- a. Many locations are considered a "Confined Space". Take all safety precautions and provide workers with necessary equipment and proper ventilation for the environment.
4. While the work is being completed, the City will continuously operate the facility. The Design-Builder is responsible completing the work so that the piping remains operational. Design-Builder shall be responsible for any ventilation required to work at or inside any location.
5. Due to condensation concerns associated with high humidity on equipment in the Work area, coating of the two 60-inch pipes, studs, nuts and other abated equipment must be completed in between September and October or Design-Builder shall control site conditions to allow for application of the high performance coating system in accordance with all manufacturers and supplier's application instructions and requirements and other work activities.
6. Sludge will be removed from the floor by KCMO prior to the start of work. Design-builder is responsible for maintaining work area during the course of completing the work.
7. Duct banks in grit house will be filled by Design-Builder to prevent water from entering. Fill material will be such that no damage will be incurred by existing equipment (see Section 02312).

PRODUCTS - (Not Used)

EXECUTION - (Not Used)

END OF SECTION

SECTION 01140  
WORK RESTRICTIONS

PART 1 - GENERAL

1.01 SUMMARY

A. This section emphasizes administrative, procedural requirements, and restrictions necessary for executing the contract and use of the construction site(s). Some paragraphs may be repeated in other Sections.

1. The Design-Builder shall furnish all labor, materials, equipment, and incidentals as necessary to comply with these requirements and restrictions.

1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all applicable Division Sections, apply to this Section.

1.03 USE OF PREMISES

A. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.

1. Limits: Confine construction operations to project site within chain link fence or Kansas City Missouri property.
2. Owner Occupancy: Allow for Owner occupancy of site.
3. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
  - a. Schedule deliveries to minimize use of driveways and entrances.
  - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

B. Design-Builder will be permitted to use available land belonging to Owner, on or near the site of the Work, for construction purposes and for storage of materials and equipment that is not already allocated to other City Contractors

C. The location and extent of the areas used shall be within the treatment plant perimeter fence as acceptable to the Owner.

D. Design-Builder shall immediately move stored materials or equipment if any occasion arises, as determined by Owner, requiring access to the storage area. Materials or equipment shall not be placed on the property of Owner until Owner has agreed to the location to be used for storage.

1.04 LIMITED ACCESS.

- A. The Blue River Wastewater Treatment plant is a limited access site. The Design-Builder shall comply with all Water Services Department rules for gaining access to the sites and shall comply with all of the City's security requirements.

#### 1.05 OCCUPANCY REQUIREMENTS

- A. Partial Owner Occupancy: Owner reserves the right to occupy and to place and install equipment in completed area, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.

#### 1.06 CONTACT WITH OWNER'S PERSONNEL

- A. All contact with Owner's personnel shall be through the Project Manager and/or the Resident Project Representative. The Design-Builder shall make requests for operation changes through the Project Manager.
- B. The Design-Builder shall consider all directions from any of the Owner's personnel except the Project Manager to be suggestions. Refer to 1.15 C.
- C. The facility Safety Manager's authority will only stop the Design-Builder's operations. The designation of authority will be in writing.
- D. In an emergency, any responsible personnel may direct the Design-Builder to stop work and leave the work area or stop the part of the Design-Builder's work that is causing the emergency.

#### 1.07 ON SITE WORK HOURS

- A. Work shall be generally performed at the project site during normal business working hours of 7:00 a.m. to 5:00 p.m., Monday through Friday. The Design-Builder shall notify the Water Service representative if they plan on working outside normal business hours. Saturday and Sunday hours, if allowable, shall also be 7:00 a.m. to 5:00 p.m.

#### 1.08 UNFAVORABLE CONSTRUCTION CONDITIONS

- A. During unfavorable weather, wet ground, or other suitable construction conditions, Design-Builder shall confine his operations to Work which will not be affected adversely by such conditions. No portion of the Work shall be constructed under conditions which would affect adversely the quality or efficiency thereof, unless special means or precautions are taken by Design-Builder to perform the Work in a proper and satisfactory manner.
- B. Work may be necessary during cold, high water levels in various unit processes, hot, or inclement weather. Design-Builder will account for all weather related costs in their bid.**
- C. Due to the location of the Work, Design-Builder will account for the implications of application of the high performance coating system in high humidity conditions which cause condensation on the surface of the force mains. De-**

**sign-Builder will follow all of manufacturers and supplier's application instructions and requirements.**

#### 1.09 SITE ADMINISTRATION

- A. The Design-Builder shall provide Supervision and Superintendence in accordance with the General Conditions. Supervision and Superintendence. The Design-Builder, or a duly authorized Representative to act for the Design-Builder, shall be continually present at the site of the Work while work is in progress for the duration of this project. In the absence of the Design-Builder or Representative, suitable communication equipment, which will ensure receipt of messages within one (1) hour, will be required.
- B. The Design-Builder shall designate, in writing, the duly authorized Representative(s) at the pre-construction meeting. The duly authorized Representative(s) shall be an official liaison between the Water Services Department and the Design-Builder regarding progress and quality of the work, the signing of pay estimates, change orders, work day reports and other forms necessary for communication and project status inquiries. Upon project commencement the Water Services Department (WSD) representative shall be notified, in writing, within five (5) working days of any changes in the Design-Builder's Representative(s).
- C. Design-Builder shall be responsible for all the areas of the site used by him and all Subcontractors in the performance of the work. Design-Builder will exert full control over the actions of their and subcontractors' employees with respect to the use and preservation of property and existing facilities, except such controls as may be specifically reserved to Owner or others.

#### 1.10 OPERATION OF EXISTING FACILITIES

- A. The facility must be kept in continuous operation throughout the construction period. No interruption will be permitted which adversely affects the degree of service provided. Provided permission is obtained from Owner in advance, portions of the existing facilities may be taken out of service for short periods corresponding with periods of minimum service demands. Consideration must be given to wet weather flows. The lower levels have, on occasion, been inundated due to high flows. The Design-Builder is responsible for removing wastewater, grit and debris from the channel in the event that the work area floods during the progress of the work.
- B. Design-Builder shall provide temporary facilities and make temporary modifications as necessary to keep the existing facilities in operation during the construction period. It is the Design-Builder's responsibility to isolate work areas.

#### 1.11 CONNECTIONS TO EXISTING FACILITIES

- A. Unless otherwise specified or indicated, Design-Builder shall make all necessary connections to existing facilities, including but not limited to structures, piping, and electric service. In each case, Design-Builder shall receive permission from Owner to undertake connections. Design-Builder shall protect facilities from deleterious substances and damage.

- B. The Work described within these Contract Documents is planned to be completed while existing facilities remain in service. Connections to existing facilities, which are in service, shall be thoroughly planned in advance, and all required equipment, materials, and labor shall be on hand at the time of undertaking connections. If existing facilities are required to be taken out of service, Work shall proceed continuously (around the clock) if necessary to complete connections in the minimum time. Owner shall not be responsible for any additional labor, including overtime wages, or material costs associated with connections, necessary for Work under this Contract. Any and all such costs shall be considered included in the Base Bid for Work under this Contract.

#### 1.12 CARE AND PROTECTION OF EXISTING PROPERTY AND UTILITIES

- A. Design-Builder shall be responsible for the preservation of all public and private property and use every precaution necessary to prevent damage thereto. If and direct or indirect damage is done to public or private property by or on account of any act, omission, neglect or misconduct in the execution of the work on the part of the Design-Builder, such property shall be restored by the Design-Builder, at his/her expense, to a condition similar or equal to that existing before the damage was done, or he/she make good the damage in other manner acceptable to the Owner. Design-Builder shall provide evidence as to final disposition and resolution of damages to the Owner upon request.
- B. Design-Builder assumes full responsibility for the protection of all structures, public or private, including poles, signs, services to buildings, gas pipes, water pipes, hydrants, sewers, drains and electrical and telephone cables, whether or not they are shown on the drawing. Carefully support and protect all such structures and utilities from any kind of damage. He/she shall repair any damage resulting from the Design-Builder's operations at his/her expense.
- C. Assistance will be given to the Design-Builder in determining the location of existing utilities within the fenced portion of the project site. The Design-Builder, however, shall bear full responsibility for obtaining all locations of all underground structures and utilities. The Design-Builder shall pay all cost or charges resulting from damage to existing utilities and structures.

#### 1.13 MAINTENANCE OF FLOW

- A. The Design-Builder shall not interrupt the flow from the sewers, drains and water courses interrupted during the progress of the work. The entire procedure of maintaining existing flow shall be fully discussed with the Project Manager well in advance of the interruption of any flow.

#### 1.14 RESPONSIBILITY FOR MATERIALS AND EQUIPMENT

- A. Design-Builder shall be fully responsible for all materials and equipment which he has furnished, and shall furnish necessary replacements at any time prior to expiration of the Correction Period.

- B. Equipment and materials shall be protected from exposure to the elements. All equipment shall be stored in accordance with the General Equipment Stipulations

#### 1.15 EXTRA/ADDITIONAL WORK

- A. Comply with Section 00700 DB.
- B. Extra/additional work is generally handled by Work Change Directives or Change Orders. Must be signed by the Director or his/her authorized representative.
- C. Only the **Project Manager, his/her Section Head, and/or Division Head** can authorize extra/additional work. Plant personnel or the Resident Project Representative have **no** authority to approve any extra/additional work. Failure to comply with this requirement may result in non-payment of work.

#### 1.16 PLANT SAFETY REQUIREMENTS

##### B. Design-Builder Responsibility

##### 1. Hazardous Materials Communications and Safety Class:

- a. All of the Design-Builder's and subcontractor's employees **may** be required to participate in Hazardous Materials Communications and Water Plant Safety Classes before working. Deliveries, Manufactures' Representatives, and employees that will be at the job site for a short time (two calendar days maximum), will be exempt from the class provided someone who has attended the class is present with them during their stay at the Pump Stations.
- 2. The Design-Builder will keep the Project Manager/Safety Officer informed of the name and a method of contact (pager and/or mobile/cell phone) the job superintendent/foreman and a contact for off-hour emergencies.

##### B. Unattended Personnel are:

- 1. Anyone not assigned to work at the Facility.
- 2. Anyone not involved with a construction project that is actively working. (Initial start-up mobilization is not active work).
- 3. Anyone not in the company of Facility personnel.
- 4. Anyone not involved in the following items:
  - a. Trash pickup.
  - b. Filling Food & Pop vending machines
  - c. Delivery and not part of a Design-Builder's mobilization
- C. All unattended personnel will be required to sign in and out at the plant main office. The area to be visited will be identified when signing in.

#### 1.17 PROTECTION OF PUBLIC AND PRIVATE PROPERTY



- A Design-Builder shall protect, shore, brace, support, and maintain all existing equipment, piping, building, underground pipes, conduits, drains, and other underground construction uncovered or otherwise affected by his construction operations. All steel decking, pavement, surfacing, driveways, curbs, walks, buildings, utility poles, guy wires, fences, and other surface structures affected by construction operations, together with all sod and shrubs in yards and plantings, shall be restored to their original conditions, whether within or outside the easement. All replacements shall be made with new materials.
- B Design-Builder shall be responsible for all damage to existing equipment, piping, building, streets, roads, highway, shoulders, ditches, embankments, culverts, bridges, and other public or private property, regardless of location or character, which may be caused by transporting equipment, materials, or men to or from the Work or any part or site thereof, whether by him or his Subcontractors. Design-Builder shall make satisfactory and acceptable arrangements with the owner of, or the agency or authority having jurisdiction over, the damaged property concerning its repair or replacement or payment of costs incurred in connection with the damage.
- C All fire hydrants and water control valves shall be kept free from obstruction and available for use at all times.

#### 1.18 DAMAGE TO EXISTING PROPERTY

- A Design-Builder will be held responsible for any damage to existing structures, Work, materials, or equipment because of his operations and shall repair or replace any damaged structures, Work, materials, or equipment to the satisfaction of, and at no additional cost to, Owner.
- B Design-Builder shall protect all existing structures and property from damage and shall provide bracing, shoring, or other work necessary for such protection.

#### 1.19 CLEANUP AND DISPOSAL OF EXCESS MATERIAL

- A. Design-Builder shall keep the premises free at all times from accumulations of waste materials and rubbish. Dispose of all residues resulting from the construction work and, at the conclusion of the work, remove and haul away any surplus excavation and any other refuse remaining from the construction operations. Leave the entire site of the Work in a neat and orderly condition.
- B. Construction materials, such as concrete forms and scaffolding shall be neatly stacked by Design-Builder when not in use. Design-Builder shall promptly remove splattered concrete, asphalt, oil, paint, corrosive liquids and cleaning solutions from surfaces to prevent marring or other damage.
- C. Volatile wastes shall be properly stored in covered metal containers and removed daily.
- D. Wastes shall not be buried or burned on the site or disposed of into storm drains, sanitary sewers, streams, or waterways. All wastes shall be removed from the site and disposed of in a manner complying with local ordinances and antipollution laws.
- E. Adequate cleanup will be a condition for recommendation of progress payment application.
- F. In order to prevent environmental pollution arising from the construction activities related to the performance of this Contract, Design-Builder shall comply with all applicable Federal, State, County and Municipal laws and regulations, as well as the specific requirements stated in this Section and elsewhere in the Specifications, concerning waste material disposal.

- G. The Design-Builder is advised that the disposal of excess excavated material in wetlands, stream corridors, and plains is strictly prohibited even if permission of the property owner is obtained.

#### 1.20 RESPONSIBILITY FOR MATERIALS AND EQUIPMENT

- A. Design-Builder shall be fully responsible for all materials and equipment that he/she has furnished, and shall furnish necessary replacements at any time prior to expiration of the Correction Period.
- B. Equipment and materials shall be protected from exposure to the elements. All equipment shall be stored in accordance with the General Equipment Stipulations.
- C. Design-Builder shall be fully responsible for all security for tools, equipment, and stored materials at the site.

#### 1.21 PREVAILING WAGE RATE

- A. The prevailing wage rate provisions have been reviewed with regard to this work and it has been determined that the following classifications apply.

**Wage Rates: County – Jackson  
State – Building**

#### 1.22 EQUIPMENT START-UP

- A. Equipment start-ups can only occur from Monday 8:00 AM to Friday 12:00 (Noon) during normal working hours. No start-ups will be allowed on weekends, holidays, or Friday afternoons unless approved by the Project Manager.
- B. No equipment start-up will be allowed after 12:00 (Noon) the day before a holiday until 8:00 AM the next normal working day unless approved by the Project Manager.

#### 1.23 EQUIVALENT MATERIALS AND EQUIPMENT

- A. Whenever a material or article is specified or described by using the name of a proprietary product or the name of a particular manufacturer or vendor, the specific item mentioned shall be understood as establishing, the type, function, and quality desired. Other manufacturer's products will be accepted provided sufficient information is submitted to allow the Water Services Department to determine that the products proposed are equivalent to those named. Such items shall be submitted for review by the procedure set forth in the submittal section.
- B. Whenever the names of proprietary products or the names of particular manufacturers or vendors are used, it shall be understood that the words "or equal" following the enumeration, if not specifically stated are implied.
- C. Requests for review of equivalency will not be accepted from anyone except the Design-Builder and such requests will not be considered until after the contract has been awarded.

#### 1.24 LAND FOR CONSTRUCTION PURPOSES

- A. Design-Builder will be permitted to use available land belonging to Owner, on or near the site of the Work, for construction purposes and for the storage of materials and

equipment. The location and extent of the areas so used shall be as indicated on the drawings.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

## SECTION 01150

### DESIGN SERVICES

#### PART 1 - GENERAL

##### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.
- B. Refer to the General Conditions Article 6 Design-Builder's Services and Responsibility. Specifically paragraphs 6.02, 6.03, 6.04, 6.07, and 6.18.
- C. Refer to the Water Services Department Rules and Regulations for information on drawing layout and requirements as appropriate. Follow Water Services Department Standard drawing format.

##### 1.02 SUMMARY

- A. The work to be performed by the Design-Builder under this contract shall consist of furnishing all necessary architectural, engineering, and other design services and the labor, materials, supervision, equipment, computers, documents, and other items and services necessary for the preparation of the required drawings, specifications, and other design information and submittals to permit the Design-Builder to compete the Work consistent with City's Project Design and Construction Criteria, the Contract Documents, and Legal Requirements.
  - 1. Provide all necessary architectural, engineering, and other design services to abate, design, and install equipment and materials as indicated within the contract. The Work includes, but is not necessarily limited to, the following:
    - a. Provide all engineering services to design, abate, test, and replace and re-coat equipment. Include all necessary work plans, drawings, additional specifications and notifications to complete the work.
    - b. Complete all required notifications prior to commencement of the work, and coordinate schedule of work with Blue River WWTP.
    - c. Remove existing platform decking and vacated office space to allow overhead access to the pipes during completion of the work. Decking will be re-installed upon the completion of the work.
    - d. Remove and abate asbestos-containing materials (ACM) from the two 60-inch pipes, nuts, and studs, as indicated in the Contract Drawings and Sections. There is approximately 2,000 linear feet of cast iron pipe, 12,000 nuts, and 6,000 studs. Appropriate air control, air monitoring, personal protective equipment (PPE) and containment will be required.
      - i. Means and methods to remove and abate ACM will be provided by Design-Builder with their bid to complete this work.
    - e. In accordance with all applicable standards and as outlined in Appendix B, perform non-destructive pipe testing to determine pipe wall thickness of both 60-inch pipes.

- f. In accordance with all applicable standards and as outlined in Appendix B, perform transient pressure monitoring and finite element analysis for both 60-inch pipes.
- g. Replace all studs and nuts. The system is to remain operational throughout the course of completing this work. Replacement of studs and nuts will be sequenced, as such, to achieve this requirement.
- h. Both pipes will be cleaned after ACM removal to remove any residual ACM and once more prior to the start of the re-coating to promote coating adhesion.
- i. Apply a high performance coating to pipes, nuts, and studs. Coating selected will be appropriate for application and performance in cool, damp environments, and as specified in Section 09960.
- j. Provide all records to KCMO WSD generated throughout the course of this work, including but not limited to, ACM waste disposal records, air monitoring records, and equipment calibration logs.

B. Project Identification:

- 1. Project Location: The Blue River Wastewater Treatment Plant, 7300 Hawthorne Road, Kansas City, Jackson County, Missouri.
- 2. Owner: Water Services Department, City of Kansas City, Missouri

C. The Contract Documents for this Project have been prepared by the Facilities Engineering Division, Water Services Department, City of Kansas City, Missouri. Wherever referred to herein, the term "City's Representative" shall mean the Water Services Department representative appointed to this project or other person so appointed by the Water Services Department.

1.02 PROFESSIONAL ENGINEER (P.E.) CERTIFICATION

- A. The Design-Builder shall provide documents/drawings sealed by a Registered Professional Engineer suitably qualified to perform the necessary work registered in the State of Missouri **(No other State, District, Territory, or Country will be acceptable)**.
- B. The Designer of Record shall affix its seal to and endorse all drawings, plans, and specifications, or estimates, and engineering data prepared by the Designer of Record under this contract. All design Subconsultants shall similarly affix their seals to and endorse their respective drawings, plans, and specifications, or estimates, and engineering data prepared for the Project.
- C. The performance of the drawings/plans provided by the Designer of Record shall remain the sole responsibility and liability of the Registered Professional Engineer that sealed the documents/drawings.

1.03 APPLICABLE CODES

- A. References in the Contract Documents to local codes mean Building Code of Kansas City, Missouri (modified IBC 2012).
- B. Other standard codes which apply to the work are designated in the Specifications.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 PREPARE PRELIMINARY CONSTRUCTION DRAWINGS/PLANS

- A. Prepare preliminary construction (50% minimum) drawings and any additional specifications for review and approval by KCMO WSD staff. Preliminary construction drawings shall be to the same scale and on the same drawings size as the final detailed construction drawings. Preliminary drawings due 60 after issuance of NTP.
  - a. Provide 10 copies, half size, of the preliminary construction drawings and any additional specifications for review by KCMO WSD. KCMO WSD to provide comments with 10 business days of delivering preliminary drawings.

3.02 PREPARE FINAL DETAILED CONSTRUCTION DRAWINGS/PLANS

- A. Prepare final detailed construction (100%) drawings, any corresponding plans, and additional specifications for Design-Builder to modify and install the bar screens including the roofing and miscellaneous repairs associated with the Contract. Final drawings and other documents due 120 after issuance of NTP.
  - a. Provide 10 copies, half size, of the final construction drawings and any additional specifications for KCMO WSD.

3.04 FINALIZE CONSTRUCTION AND INSTALLATION BY DESIGN-BUILDER

- A. All design, abatement, and coating to be finalized and substantially complete by October 31, 2022, as noted in the Contract Documents. Due to condensation concerns, coating of the two 60-inch pipes, studs, nuts and other abated equipment to be completed in between September and October. Design-Builder can complete the coatings at another time if condensation controls are implemented.
- B. Finish all punchlist items and any other work associated with the Contract close-out within 60 days after Substantial Completion.

3.05 LAYOUT DATA

- A. Designer of Record/Design-Builder shall keep neat and legible notes of measurements and calculations made by him in connection with the layout of the Work. Copies of such data shall be furnished to the Resident Project Representative for use in checking Design-Builder's layout as provided under Lines and Grades. All such data considered of value to Owner will be transmitted to Owner by Owner's representative with other records upon completion of the Work.

END OF SECTION



# ALLOWANCE AUTHORIZATION

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

To: \_\_\_\_\_

Authorization Number: \_\_\_\_\_

Re: \_\_\_\_\_

From: \_\_\_\_\_

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

Contract For: \_\_\_\_\_

You are authorized to perform the following item(s) of work and to adjust the Allowance Sum accordingly:

This is NOT a CHANGE ORDER and does NOT INCREASE OR DECREASE the CONTRACT AMOUNT.

Original Allowance	\$ _____
Allowance Expenditures prior to this Authorization	\$ _____
Allowance Balance prior to this Authorization	\$ _____
Allowance will be [ <input type="checkbox"/> increased] [ <input type="checkbox"/> decreased] by this Authorization	\$ _____
New Allowance Balance	\$ _____

## APPROVAL RECOMMENDED

## CITY APPROVAL

\_\_\_\_\_  
Design Professional                      Date

\_\_\_\_\_  
City's Representative                      Date

## CONTRACTOR ACCEPTANCE

\_\_\_\_\_  
Construction Manager                      Date

\_\_\_\_\_  
Contractor                      Date

### Attachments:

- Distribution:
- City
  - Contractor
  - Construction Manager
  - Design Professional
  - Consultant
  - Other

## **SECTION 01230 - ALTERNATES**

### **PART 1 GENERAL**

#### **1.01 SUMMARY**

- A. Section includes: Identification and description of Alternates.

#### **1.02 PROCEDURES**

- A. Alternates will be exercised at Owner's option.
- B. Coordinate related work and modify surrounding work as required to complete the Work, including changes under Alternates accepted by Owner in Notice of Award.

#### **1.03 ALTERNATES**

- A. Bid Alternate No. 1 – 365 day bid escalation:
  - 1. Base Bid: Not Included
  - 2. Bid Alternate:
    - a. Provide pricing for Base Bid and alternatives good for completion of the work in September – October 2022.

### **PART 2 PRODUCTS**

Not Used.

### **PART 3 EXECUTION**

Not Used.

**END OF SECTION**



## SECTION 01290

### PAYMENT PROCEDURES

#### PART 1 - GENERAL

##### 1.01 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1. The Design-Builder shall furnish all labor, materials, equipment, and incidentals as necessary to comply with these requirements.

##### 1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract; including General and Supplementary Conditions, all applicable Division 1 Sections, and all applicable Division Sections; apply to this Section.

##### 1.03 DEFINITIONS

A. Schedule of Values: A statement furnished by Design-Builder allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Design-Builder's Applications for Payment.

##### 1.04 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Design-Builder's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:

- a. Application for Payment forms with Continuation Sheets.

2. Submit the Schedule of Values to Project Manager for approval as indicated within the Contract. Refer to Article 2, Preliminary Matters; and Article 13, Payments to Design-Builder and Completion.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide a minimum of one line item for each Specification Division.

1. Prepare and submit the Schedule of Values using the Kansas City Schedule of values form 01290.02 located at the end of this section. **AIA forms are not acceptable.**
2. Provide a breakdown of the Contract Sum in detail. Coordinate with the Project Manual table of contents.
3. Round amounts to nearest whole dollar; total shall equal the Contract Sum.

4. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored.
5. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
6. Provide a separate line item(s) for the Design Services work. Refer to Section 01150.
7. Provide separate lines for mobilization, demobilization, Manufacturers' Field Services, Commissioning, Operation and Maintenance Data, Warranty Documents, Equipment and Startup Data, Project Record Documents, and contract close-out (Refer to Sections 01433, 01757, 01783, and 01914 for contract close out details).
8. Each item in the Schedule of Values and Applications for Payment shall be complete.

#### 1.05 APPLICATIONS FOR PAYMENT

- A. Payment Application Times: The date for each progress payment is indicated in the Supplementary Conditions. The period of construction Work covered by each Application for Payment is the period indicated in the General and Supplementary Conditions.
- B. Payment Application Forms: Use forms provided by Owner for Applications for Payment and follow Owner's payment procedure, described in the General and Supplementary Conditions. Sample copies are included at end of this Section.
- C. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Design-Builder. Project Manager will return incomplete applications without action.
  1. Entries shall match data on the Schedule of Values and Design-Builder's Construction Schedule. Use updated schedules if revisions were made.
  2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- D. Provide an updated Construction Schedule with each payment application.
- E. Provide HRD Form 485.01 MWBE Monthly Utilization Report with each payment request.
- F. Transmittal: Submit one signed and notarized original copies of each Application for Payment to Project Manager by a method ensuring receipt within 24 hours. The Application for Payment shall include waivers of lien and similar attachments if required.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION



# APPLICATION FOR PAYMENT

**Project Number** 81000976/1643

**Project Title** 60-Inch Force Main Repairs at BR WWTP

Final Payment<sup>5</sup>

CONTRACTOR \_\_\_\_\_

Address \_\_\_\_\_

Application Number<sup>2</sup>: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Ordinance/Resolution Number: \_\_\_\_\_  
 Effective: \_\_\_\_\_  
 PO Number: \_\_\_\_\_  
 Vendor Number: \_\_\_\_\_

Application for Work Accomplished from \_\_\_\_\_ to \_\_\_\_\_

Original Contract Price	[1]		\$	-
Net by Change Orders through _____		[2]	\$	-
Current Contract Price (1+2)		[3]	\$	-
Completed Work	[4]	\$	-	
Disputed Amounts <sup>3</sup>	[-]	[4a]	\$	-
Stored Material <sup>4</sup>	[5]	\$	-	
Disputed Amounts <sup>3</sup>	[-]	[5a]	\$	-
Total Completed and Stored to Date (4+5)		[6]	\$	-
Previous Payments	[7]	\$	-	
Previous Retainage	[8]	\$	-	
Total Previous Applications (7+8)		[9]	\$	-
Amount This Application (6-9)		[10]	\$	-
Less Retainage This Application (5%)		[-]	[11]	\$ -
Release of Retainage		[12]	\$	-
Total Due This Application (10-11+12)		[13]	\$	-
Liquidated Damages				
Completion of Work	[14]	\$	-	[-] \$ -
Prevailing Wage <sup>7</sup>	[15]	\$	-	[-] \$ -
MBE/WBE Program <sup>7</sup>	[16]	\$	-	[-] \$ -
Workforce Program <sup>7</sup>	[17]	\$	-	[-] \$ -
<b>Total Amount Due Contractor (13 - 14 through 17)</b>		[18]	\$	-

Accompanying Documentation: <sup>1, 2, 3, 4, 5, & 6</sup> and any other information as necessary.

NOTE: Initial all figures on this Application and on the Schedule of Values that are changed to correct errors or conform to the amount recommended. Attach explanation of changes that have been made.

**CONTRACTOR's Certification:**

The undersigned CONTRACTOR certifies that (a) all previous progress payments received from OWNER on account of Work done under this Contract have been applied on account to discharge CONTRACTOR's legitimate obligations incurred in connection with Work covered by all prior Applications for Payment; (b) at time of payment, title of all Work, materials and equipment incorporated into said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to OWNER indemnifying OWNER against any such Lien, security interest or encumbrance); and (c) all Work covered by this Application for Payment is in accordance with the Contract Documents and not defective; and (d) all manufactured goods or commodities used or supplied for this Project are in compliance with Kansas City's Buy America ordinance.

By \_\_\_\_\_  
 Contractor Authorized Representative (Print) Signature

Date \_\_\_\_\_

State of \_\_\_\_\_ )  
 County of \_\_\_\_\_ )SS

Subscribed and Sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

My commission expires:

Notary Public: \_\_\_\_\_

DESIGN PROFESSIONAL's Recommendation of Payment:

In accordance with the Contract Documents, based on on-Site observations and the data comprising this application, the DESIGN PROFESSIONAL recommends to the OWNER that to the best of the DESIGN PROFESSIONAL's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the CONTRACTOR is entitled to payment of the Amount above listed in this application.

\_\_\_\_\_  
Name of firm (Print)                      DESIGN PROFESSIONAL (Print)                      (Signature)

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

Construction/Program Manager's Recommendation of Payment: (if applicable)

In accordance with the Contract Documents, based on on-Site observations and the data comprising this application, the Construction/Program Manager recommends to the OWNER that to the best of the Construction/Program Manager's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the CONTRACTOR is entitled to payment of the Amount above listed in this application.

\_\_\_\_\_  
Construction/Program Manager firm (Print)                      Authorized Representative (Print)                      (Signature)

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

City's Representative's Agreement with Recommendation of Payment

\_\_\_\_\_  
City's Representative(print)                      (Signature)                      (Date)

City's Approval

The amount previously recommended is approved for payment.

\_\_\_\_\_  
Director or Designee (Print)                      (Signature)                      (Date)

<sup>1</sup>See General Conditions Article 14.02 A and B

<sup>2</sup>Proof of tax compliance if 1st payment and if Contract amount exceeds \$150,000.00

<sup>3</sup>Schedule of Values—Denote any amounts currently disputed in this application. Attach additional dispute documentation if required.

<sup>4</sup>If requesting payment for stored materials, see General Conditions Article 14.02 A.1

<sup>5</sup>If final payment, current proof of tax compliance if Contract is longer than 1 year and amount exceeds \$150,000.00.

<sup>6</sup> Per General Conditions Sec. 14.02 attach a copy of the most recent 00485.01 M/WBE Monthly Utilization Report, 00485.02 Project Workforce Monthly Report and 00485.03 Company-Wide Workforce Monthly Report CONTRACTOR has submitted to the City's Human Relations Department

<sup>7</sup>Applicable only if final payment

**REMINDER:** CONTRACTOR is responsible for meeting or exceeding the the D/M/WBE participation amounts in its Contractor Utilization Plan (CUP) as amended by any previously approved Request for Modification/Substitution. Any Change Orders or amendements modifying the amount CONTRACTOR is to be compensated will have correspondingly impacted the amount of compensation due D/M/WBEs for purposes of meeting or exceeding the Bidder/Proposer participation. CONTRACTOR is again reminded to consider the effect of any Change Order or amendment, and to submit a Request for Modification/Substitution if appropriate.

Distribution:      Owner                      Project Manager  
                         Contractor                      Design Professional  
                         Construction Manager                      \_\_\_\_\_





# City Of Kansas City, Missouri

## Certified Payroll Report Instructions

### GENERAL INSTRUCTIONS:

Each space on the attached Certified Payroll Report requiring information is numbered. The numbers below correspond to those spaces. When completing the Certified Payroll Report, insert the required information in each space. The Certified Payroll Report **must be complete, clear and legible** and be accompanied by a completed Payroll Certification including **original signature**. All payrolls are to be submitted within two (2) weeks after the ending date of the payroll week.

The payroll form is available on line.

### INSTRUCTION FOR PAYROLL SHEETS

1. **PAYROLL NUMBER:** Insert the number of the payroll. Payrolls start with number 1 (one) for the first week of work by each contractor or subcontractor. The numbers are then continuous until the last payroll. During weeks when no work takes place a payroll for that week showing no work is to be turned in. Revised payrolls must be designated with a letter "R" following the number. Check (✓) the box by the word "FINAL" after the number to indicate that no further work will be done by the contractor or subcontractor.
2. **WEEK ENDING:** On each sheet, insert the date of the last day of this payroll.
3. **SHEET OF:** On each sheet, insert the number of each sheet and the total number of sheets submitted.
4. **GRANT AGENCY PROJECT NO:** Insert the Grant Agency Project Grant Number if this is a grant funded project.
5. **CONTRACTOR:** Insert the contractor's company name and address.
6. **SUBCONTRACTOR:** If this is a payroll for a subcontractor, insert subcontractor's name and address. For the remainder of these instructions, the word "contractor" shall apply to both contractor and subcontractor.
7. **DEPARTMENT PROJECT or CONTRACT NO:** Insert Department's Project or Contract Number.
8. **LOCATION:** Insert location of work, including address, and county.
9. **DESCRIPTION:** Insert name of the project or contract from the Agreement.
10. **FEDERAL I.D. NUMBER:** Insert the contractor (10a) and subcontractor's (10b) Federal I.D. Number.
11. **EMPLOYEE NAME:** Insert employee's full legal name and complete home address. Make sure to include Apartment #'s and zip code.

12. **SOCIAL SECURITY NO.:** Insert employee's social security number (xxx-xx-xxxx).
13. **DATE:** Insert date for each day of the payroll week for each employee (mm/dd/yyyy).
14. **REGULAR HOURS\*:** Insert the regular hours worked each day.
15. **OVERTIME HOURS\*:** Insert the overtime hours worked each day.
16. **DOUBLE OVERTIME HOURS\*:** Insert the double overtime hours worked each day.

**\*Note:** Numbers 14, 15, and 16: Make sure these **hours are equal to or greater than the hours turned in on the "Daily Labor Force Report" form**. Refer to the wage order for applicable overtime schedule.

If allowed by occupational title's applicable overtime rate, Contractor may make a permanent schedule transfer to an eight (8) or ten (10) hour day work week. **Advance written notification to and approval** from the Owner's Representative **is required**.

If allowed by the occupational title's applicable overtime rate, any change in the work week schedule due to inclement weather **must** be documented on the certified payroll.

17. **TOTAL HOURS:** Insert total of *regular hours* worked for the week on this project. (The total hours will calculate automatically if you are using the electronic form.)
18. **TOTAL HOURS:** Insert total of *overtime hours* worked for the week on this project. (The total hours will calculate automatically if you are using the electronic form.)
19. **TOTAL HOURS:** Insert total of *double overtime* hours worked for the week on this project. (The total hours will calculate automatically if you are using the electronic form.)
20. **TOTAL FRINGE HOURS:** Insert total Fringe Hours (by adding the amounts in 17, 18, and 19). (The total hours will calculate automatically if you are using the electronic form.)
21. **BASE RATE\*:** Insert basic hourly rate of pay. Check the contract's "Annual Wage Order" or the "Federal General Wage Decision" section for basic hourly rate.
22. **OVERTIME RATE\*:** Insert overtime rate of pay. Check the contract's "Annual Wage Order" or the "Federal General Wage Decision" section for the overtime rate.
23. **DOUBLE OVERTIME RATE\*:** Insert double overtime rate of pay. Check the contract's "Annual Wage Order" or the "Federal General Wage Decision" section for the double overtime rate.
24. **FRINGE RATE\*:** Insert fringe benefit rate for this project. Check the contract's "Annual Wage Order" or the "Federal General Wage Decision" section for the fringe benefit rate.

**\*Note:** *The total of the basic hourly rate plus the fringe benefit rate must be equal to or greater than the total of the basic hourly rate plus the fringe benefit rate found in the contract's "Annual Wage Order" or the "Federal General Wage Decision" section. If the contract contains both of the above, the higher rate will prevail.*

25. **TOTAL:** Multiply the amounts in 17 by 21 and insert here. (The total hours will calculate automatically if you are using the electronic form.)

26. **TOTAL:** Multiply the amounts in 18 by 22 and insert here. (The total hours will calculate automatically if you are using the electronic form.)
27. **TOTAL:** Multiple the amounts in 19 by 23 and insert here. (The total hours will calculate automatically if you are using the electronic form.)
28. **TOTAL:** Multiply the amounts in 20 by 24 and insert here. (The total hours will calculate automatically if you are using the electronic form.)
29. Check (✓) the box (☐) for the “*APPROVED PLAN*”, “*EMPLOYEE*”, or both indicating the Plan or manner in which the fringe benefit is paid. If fringe benefit is paid to both a Plan and the employee, then insert each amount that is paid to the Plan and/or the employee. If paid to a Plan, list the name(s) of Plan Programs on Payroll Certification page.

**\*Note:** 29a plus 29b **must equal** 28.

30. **OCCUPATIONAL TITLE/CLASSIFICATION:** Insert occupational title/classification of worker for each employee. Examples: Carpenter, laborer, electrician.
31. **GROUP:** Insert the group if, applicable for the occupational title/classification. Example: Operating Engineers Group I, II, III, IV or V.
32. **SKILL GROUP:** Insert skill group, if applicable. Example: general laborer, skilled laborer, first semi-skilled, second semi-skilled etc. or any of the listings under the federal classification such as painters.
33. **HOURS:** Insert total hours worked for all jobs for each employee during each payroll period.
34. **GROSS EARNINGS:** Insert employee’s gross earnings for each payroll period.
35. **FEDERAL:** Insert the amount of the deduction from each employee’s check stub.
36. **FICA:** Insert the amount of the deduction from each employee’s check stub.
37. **STATE:** Insert the amount of the deduction from each employee’s check stub.
38. **LOCAL E-TAX:** Insert the amount of the deduction from each employee’s check stub.
39. **MISCELLANEOUS:** Insert the amount of the deduction from each employee’s check stub.
40. **NET PAY:** Insert the employee’s net pay for each week.
41. **EARNINGS FOR THIS JOB:** Add the amounts in 25, 26, 27, and 29b and insert here.

**\*Note:** If fringe benefit is paid to Approved Plan, do not add the amount in 29a to this total.

42. **KANSAS CITY EARNINGS TAX THIS JOB:** Insert Kansas City Earnings tax deducted from employee’s check for this job.

***Steps 11 through 42 are to be repeated for each employee working on the project site, or for the same employee working any additional Occupational Title/Classification.***





# CERTIFIED PAYROLL REPORT

**Project Number:**

**Project Title:**

**Payroll Number:** ①

**Final**

CONTRACTOR: ⑤	WEEK ENDING: ②	SHEET: ③	of	GRANT AGENCY PROJECT NO.: ④
ADDRESS:	SUBCONTRACTOR: ⑥			DEPT PROJECT OR CONTRACT NO.: ⑦
CITY, STATE ZIP:	ADDRESS:			LOCATION: ⑧
FEDERAL I.D. NUMBER: ⑩a	CITY, STATE ZIP:			DESCRIPTION: ⑨
	FEDERAL I.D. NUMBER: ⑩b			

EMPLOYEE NAME: ⑪	First Name	Last Name	DATE: ⑬	MON	TUES	WED	THUR	FRI	SAT	SUN	TOTAL HRS	BASE RATE	O.T. RATE	FRINGE RATE	TOTAL	
ADDRESS:	REG. HRS: ⑭										17	\$ 21	-		\$ 25	
CITY, STATE ZIP:	O.T. HRS: ⑮										18		\$ 22		\$ 26	
SOCIAL SECURITY NO.: ⑫	D.O.T. HRS: ⑯										19		\$ 23		\$ 27	
OCCUPATIONAL TITLE / CLASSIFICATION: ⑳											TOTAL FRINGE HOURS: 20	0.00		\$ 24		\$ 28
			GROUP: ⑳		SKILL GROUP: ㉑					FRINGE PAID TO: ㉒		<input type="checkbox"/> APPROVED PLAN ㉓a <input type="checkbox"/> EMPLOYEE ㉓b				
WEEK ALL JOBS:	HOURS: ㉔	GROSS EARNINGS: ㉕	FEDERAL: ㉖	FICA: ㉗	STATE: ㉘	LOCAL E-TAX: ㉙	MISC: ㉚	NET PAY: ㉛	EARNINGS FOR THIS JOB: ㉜		\$ 41	KANSAS CITY EARNINGS TAX THIS JOB: ㉝		\$ 42		

EMPLOYEE NAME:	First Name	Last Name	DATE:	MON	TUES	WED	THUR	FRI	SAT	SUN	TOTAL HRS	BASE RATE	O.T. RATE	FRINGE RATE	TOTAL	
ADDRESS:	REG. HRS:										0.00	\$ -			\$ -	
CITY, STATE ZIP:	O.T. HRS:										0.00		\$ -		\$ -	
SOCIAL SECURITY NO.:	D.O.T. HRS:										0.00		\$ -		\$ -	
OCCUPATIONAL TITLE / CLASSIFICATION:											TOTAL FRINGE HOURS	0.00		\$ -		\$ -
			GROUP:		SKILL GROUP:					FRINGE PAID TO:		<input type="checkbox"/> APPROVED PLAN <input type="checkbox"/> EMPLOYEE				
WEEK ALL JOBS:	HOURS:	GROSS EARNINGS:	FEDERAL:	FICA:	STATE:	LOCAL E-TAX:	MISC:	NET PAY:	EARNINGS FOR THIS JOB:		\$ -	KANSAS CITY EARNINGS TAX THIS JOB:		\$ -		

EMPLOYEE NAME:	First Name	Last Name	DATE:	MON	TUES	WED	THUR	FRI	SAT	SUN	TOTAL HRS	BASE RATE	O.T. RATE	FRINGE RATE	TOTAL	
ADDRESS:	REG. HRS:										0.00	\$ -			\$ -	
CITY, STATE ZIP:	O.T. HRS:										0.00		\$ -		\$ -	
SOCIAL SECURITY NO.:	D.O.T. HRS:										0.00		\$ -		\$ -	
OCCUPATIONAL TITLE / CLASSIFICATION:											TOTAL FRINGE HOURS	0.00		\$ -		\$ -
			GROUP:		SKILL GROUP:					FRINGE PAID TO:		<input type="checkbox"/> APPROVED PLAN <input type="checkbox"/> EMPLOYEE				
WEEK ALL JOBS:	HOURS:	GROSS EARNINGS:	FEDERAL:	FICA:	STATE:	LOCAL E-TAX:	MISC:	NET PAY:	EARNINGS FOR THIS JOB:		\$ -	KANSAS CITY EARNINGS TAX THIS JOB:		\$ -		

EMPLOYEE NAME:	First Name	Last Name	DATE:	MON	TUES	WED	THUR	FRI	SAT	SUN	TOTAL HRS	BASE RATE	O.T. RATE	FRINGE RATE	TOTAL	
ADDRESS:	REG. HRS:										0.00	\$ -			\$ -	
CITY, STATE ZIP:	O.T. HRS:										0.00		\$ -		\$ -	
SOCIAL SECURITY NO.:	D.O.T. HRS:										0.00		\$ -		\$ -	
OCCUPATIONAL TITLE / CLASSIFICATION:											TOTAL FRINGE HOURS	0.00		\$ -		\$ -
			GROUP:		SKILL GROUP:					FRINGE PAID TO:		<input type="checkbox"/> APPROVED PLAN <input type="checkbox"/> EMPLOYEE				
WEEK ALL JOBS:	HOURS:	GROSS EARNINGS:	FEDERAL:	FICA:	STATE:	LOCAL E-TAX:	MISC:	NET PAY:	EARNINGS FOR THIS JOB:		\$ -	KANSAS CITY EARNINGS TAX THIS JOB:		\$ -		



# CERTIFIED PAYROLL REPORT

**Project Number:** 8100976/1643  
**Project Title:** 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant  
**Payroll Number:** Final

WEEK ENDING:		SHEET		of		GRANT AGENCY PROJECT NO.:											
CONTRACTOR:				SUBCONTRACTOR:				DEPT PROJECT OR CONTRACT NO.:									
ADDRESS:				ADDRESS:				LOCATION:									
CITY, STATE ZIP:				CITY, STATE ZIP:				DESCRIPTION:									
FEDERAL I.D. NUMBER:				FEDERAL I.D. NUMBER:													
EMPLOYEE NAME:		First Name	Last Name	DATE:	MON	TUES	WED	THUR	FRI	SAT	SUN	TOTAL HRS.	BASE RATE	O.T. RATE	FRINGE RATE	TOTAL	
ADDRESS:				REG. HRS.								0.00	\$ -			\$ -	
CITY, STATE ZIP:				O.T. HRS.								0.00		\$ -		\$ -	
SOCIAL SECURITY NO.:				D.O.T. HRS.								0.00		\$ -		\$ -	
OCCUPATIONAL TITLE / CLASSIFICATION:								TOTAL FRINGE HOURS		0.00				\$ -		\$ -	
												FRINGE PAID TO:		APPROVED PLAN		\$ -	
														EMPLOYEE		\$ -	
WEEK ALL JOBS:	HOURS:	GROSS EARNINGS:	FEDERAL:	FICA:	STATE:	LOCAL E-TAX:	MISC:	NET PAY:	EARNINGS FOR THIS JOB:		\$ -		KANSAS CITY EARNINGS TAX THIS JOB		\$ -		
		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -									
EMPLOYEE NAME:		First Name	Last Name	DATE:	MON	TUES	WED	THUR	FRI	SAT	SUN	TOTAL HRS.	BASE RATE	O.T. RATE	FRINGE RATE	TOTAL	
ADDRESS:				REG. HRS.								0.00	\$ -			\$ -	
CITY, STATE ZIP:				O.T. HRS.								0.00		\$ -		\$ -	
SOCIAL SECURITY NO.:				D.O.T. HRS.								0.00		\$ -		\$ -	
OCCUPATIONAL TITLE / CLASSIFICATION:								TOTAL FRINGE HOURS		0.00				\$ -		\$ -	
												FRINGE PAID TO:		APPROVED PLAN		\$ -	
														EMPLOYEE		\$ -	
WEEK ALL JOBS:	HOURS:	GROSS EARNINGS:	FEDERAL:	FICA:	STATE:	LOCAL E-TAX:	MISC:	NET PAY:	EARNINGS FOR THIS JOB:		\$ -		KANSAS CITY EARNINGS TAX THIS JOB		\$ -		
		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -									
EMPLOYEE NAME:		First Name	Last Name	DATE:	MON	TUES	WED	THUR	FRI	SAT	SUN	TOTAL HRS.	BASE RATE	O.T. RATE	FRINGE RATE	TOTAL	
ADDRESS:				REG. HRS.								0.00	\$ -			\$ -	
CITY, STATE ZIP:				O.T. HRS.								0.00		\$ -		\$ -	
SOCIAL SECURITY NO.:				D.O.T. HRS.								0.00		\$ -		\$ -	
OCCUPATIONAL TITLE / CLASSIFICATION:								TOTAL FRINGE HOURS		0.00				\$ -		\$ -	
												FRINGE PAID TO:		APPROVED PLAN		\$ -	
														EMPLOYEE		\$ -	
WEEK ALL JOBS:	HOURS:	GROSS EARNINGS:	FEDERAL:	FICA:	STATE:	LOCAL E-TAX:	MISC:	NET PAY:	EARNINGS FOR THIS JOB:		\$ -		KANSAS CITY EARNINGS TAX THIS JOB		\$ -		
		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -									
EMPLOYEE NAME:		First Name	Last Name	DATE:	MON	TUES	WED	THUR	FRI	SAT	SUN	TOTAL HRS.	BASE RATE	O.T. RATE	FRINGE RATE	TOTAL	
ADDRESS:				REG. HRS.								0.00	\$ -			\$ -	
CITY, STATE ZIP:				O.T. HRS.								0.00		\$ -		\$ -	
SOCIAL SECURITY NO.:				D.O.T. HRS.								0.00		\$ -		\$ -	
OCCUPATIONAL TITLE / CLASSIFICATION:								TOTAL FRINGE HOURS		0.00				\$ -		\$ -	
												FRINGE PAID TO:		APPROVED PLAN		\$ -	
														EMPLOYEE		\$ -	
WEEK ALL JOBS:	HOURS:	GROSS EARNINGS:	FEDERAL:	FICA:	STATE:	LOCAL E-TAX:	MISC:	NET PAY:	EARNINGS FOR THIS JOB:		\$ -		KANSAS CITY EARNINGS TAX THIS JOB		\$ -		
		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -									

Date \_\_\_\_\_

I, \_\_\_\_\_, \_\_\_\_\_  
(Name of Signatory Party) (Title)  
do hereby state:

(1) That I pay or supervise the payment of the persons employed by  
(Contractor or subcontractor) \_\_\_\_\_  
on the (Building or work) \_\_\_\_\_: that during the  
payroll period commencing on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, and ending  
the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, all said persons employed on said project  
have been paid the full weekly wages earned, that no rebates have been or  
will be made either directly or indirectly to or on behalf of said (Contractor or  
subcontractor) \_\_\_\_\_ from  
the full weekly wages earned by any person and that no deductions have  
been made either directly or indirectly from the full wages earned by any  
person, other than permissible deductions as defined in Regulations, Part 3  
(29 CFR Subtitle A), issued by the Secretary of Labor under the Copeland  
Act, as amended (48 Stat. 948.63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40  
U.S.C. 276c), and described below:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(2) That any payrolls otherwise required under this contract to be submitted  
for the above period are correct and complete; that the wage rates for  
laborers or mechanics contained herein are not less than the applicable  
wage rates contained in any wage determination incorporated into this  
contract; that the classifications set forth herein for each laborer or mechanic  
conform to the work he performed.

(3) That any apprentices employed in the above period are duly registered in  
a bona fide apprenticeship program registered with a State apprenticeship  
agency recognized by the Bureau of Apprenticeship and Training, United  
States Department of Labor, or if no such recognized agency exists in a  
State, are registered with the Bureau of Apprenticeship and Training, United  
States Department of Labor.

(4) That:  
(a) WHERE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS,  
OR PROGRAMS

In addition to the basic hourly wage rates paid to each laborer or  
mechanic listed in the above referenced payroll, consisting of \_\_\_\_\_ pages,  
payments of fringe benefits as listed in the contract have been or will be

made to appropriate programs for the benefit of such employees, exceptions  
noted in 4 (c) below.

(b) WHERE BENEFITS ARE PAID IN CASH

Each laborer or mechanic listed in the above referenced payroll,  
consisting of \_\_\_\_\_ pages, has been paid, as indicated on the payroll, in an  
amount not less than the sum of the basic hourly wage rate plus the amount  
of the required fringe benefits as listed in the contract, except as noted in  
Section 4 (c) below.

(c) EXCEPTIONS

EXCEPTION (CRAFT)	EXPLANATION
REMARKS	

NAME AND TITLE	SIGNATURE
The willful falsification of any of the above statements may subject the contractor or subcontractor to civil or criminal prosecution. See Section 1001 of Title 18 Section 231 of Title 31 of the United States Code.	



## SUBCONTRACTORS AND MAJOR MATERIAL SUPPLIERS LIST

Project Number 81000976/1643 Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

From Contractor \_\_\_\_\_ To \_\_\_\_\_ Date \_\_\_\_\_

Spec. No.	Section Title	4	Firm, Address (Check box if Supplier)	Phone, FAX and e-mail	Contact

Attachments:

Signed by: \_\_\_\_\_ Date \_\_\_\_\_

Distribution:  Owner  Contractor  Construction Manager  Design Professional  Consultant  Other



# DAILY LABOR FORCE REPORT

Project Number 81000976/1643 Day \_\_\_\_\_ Date \_\_\_\_\_

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

Contractor \_\_\_\_\_

Subcontractor \_\_\_\_\_

Weather: (Indicate if weather prevented work and why) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Shift: (circle) 5-8 hr Days 4-10 hr Days Other \_\_\_\_\_

\* This report *MUST be completed and turned in* for EACH DAY until FINAL COMPLETION.

<b>Worker's Full Legal Name</b>	<b>Occupational Title or Classification Group &amp; Skill</b>	<b>Hours Worked &amp; Time (i.e. 10AM – 4PM)</b>	<b>Race &amp; Gender</b>

I CERTIFY THAT ALL OF THE INFORMATION PROVIDED ABOVE IS TRUE AND COMPLETE.

Contractor/Subcontractor Representative:

Complete Name: (print) \_\_\_\_\_ Title: (print) \_\_\_\_\_

Signature: \_\_\_\_\_

Page \_\_\_\_ of \_\_\_\_

Distribution:  City Department  Contractor  Subcontractor  Other



## CERTIFICATE OF SUBSTANTIAL COMPLETION

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

CONTRACT FOR: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

DATE OF ISSUANCE: \_\_\_\_\_

PROJECT OR DESIGNATED PORTION SHALL INCLUDE:

The Work performed under this Contract has been reviewed and found, to the Design Professional's and/or Construction Manager's best knowledge, information and belief, to be substantially complete. Substantial Completion is the state in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use. The date of Substantial Completion of Project or portion thereof designated above is hereby established as \_\_\_\_\_ which is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below:

A list of items to be completed or corrected is attached hereto. 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 Documents.

\_\_\_\_\_  
CONSTRUCTION MANAGER BY \_\_\_\_\_ DATE \_\_\_\_\_

\_\_\_\_\_  
DESIGN PROFESSIONAL BY \_\_\_\_\_ DATE \_\_\_\_\_

The Contractor will complete or correct the Work on the list of items attached hereto within \_\_\_\_\_ days from the above date of Substantial Completion.

\_\_\_\_\_  
CONSTRUCTION MANAGER BY \_\_\_\_\_ DATE \_\_\_\_\_

\_\_\_\_\_  
DESIGN PROFESSIONAL BY \_\_\_\_\_ DATE \_\_\_\_\_

The Owner accepts the Work or designated portion thereof as substantially complete and will assume full possession thereof at \_\_\_\_\_ (time) on \_\_\_\_\_ (date).

\_\_\_\_\_  
OWNER'S REPRESENTATIVE BY \_\_\_\_\_ DATE \_\_\_\_\_

Distribution:  Owner  
 Contractor  
 Construction Manager  
 Design Professional  
 Consultant \_\_\_\_\_  
 Other \_\_\_\_\_



## PUNCH LIST

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater  
Treatment Plant

CONTRACTOR \_\_\_\_\_

From \_\_\_\_\_ Site Visit Date \_\_\_\_\_

The following items require the attention of the CONTRACTOR for completion or correction. This list may not be all-inclusive, and the failure to include any items on this list does not alter the responsibility of the CONTRACTOR to complete all Work in accordance with the Contract Documents.

Item No.	Location (Area)	Description	Correction/Completion Date	Verification Check
----------	-----------------	-------------	----------------------------	--------------------

Attachments

Signed by: \_\_\_\_\_ Date: \_\_\_\_\_  
DESIGN PROFESSIONAL (Firm/In House)

- Distribution:
- OWNER
  - CONTRACTOR
  - DESIGN PROFESSIONAL
  - Consultant \_\_\_\_\_
  - Other \_\_\_\_\_



# CONTRACTOR AFFIDAVIT FOR FINAL PAYMENT

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

STATE OF \_\_\_\_\_ )  
 )SS  
COUNTY OF \_\_\_\_\_ )

The Undersigned, \_\_\_\_\_ of lawful  
(Name)

age, being first duly sworn, states under oath as follows:

1. I am the \_\_\_\_\_ of \_\_\_\_\_ who is the general  
(Title) (CONTRACTOR)  
CONTRACTOR for the CITY on Project No. \_\_\_\_\_ and Project Title \_\_\_\_\_.

2. All payrolls, material bills, use of equipment and other indebtedness connected with the Work for this Project have been paid and all Claims of whatever nature have been satisfied, as required by the Contract.

3 (✓) \_\_\_ Prevailing wage does not apply; or

(✓) \_\_\_ All provisions and requirements set forth in Chapter 290, Section 290.210 through and including 290.340, Missouri Revised Statutes, pertaining to the payment of wages to workmen employed on public works projects have been fully satisfied and there has been no exception to the full and complete compliance with these provisions and requirements and the Annual Wage Order contained in the Contract in carrying out the Contract and Work. CONTRACTOR has fully complied with the requirements of the prevailing wage law as required in the Contract and has attached affidavits from all Subcontractors on this Project, regardless of tier, affirming compliance with the prevailing wage law as stipulated in the Contract.

4. I hereby certify that (a) at project completion and pursuant to contractor's final request for payment, contractor achieved ( 12 %) Minority Business Enterprise (MBE) participation and ( 12 %) Women Business Enterprise (WBE) participation on this contract, and (b) listed herein are the names of all certified M/WBE subcontractors, regardless of tier, with whom I, or my subcontractors contracted.

1. Name of MBE/WBE Firm \_\_\_\_\_  
Address \_\_\_\_\_  
Telephone Number ( \_\_\_\_\_ ) \_\_\_\_\_  
IRS Number \_\_\_\_\_  
Area/Scope\*of Work \_\_\_\_\_  
Subcontract Final Amount \_\_\_\_\_

2. Name of MBE/WBE Firm \_\_\_\_\_  
Address \_\_\_\_\_  
Telephone Number ( \_\_\_\_\_ ) \_\_\_\_\_  
IRS Number \_\_\_\_\_  
Area/Scope\*of Work \_\_\_\_\_  
Subcontract Final Amount \_\_\_\_\_



List additional subcontractors, if any, on a similar form and attach to the bid.

Supplier\*\* Final Amount: \_\_\_\_\_

\*Reference to specification sections or bid item number.

- (✓) \_\_\_ Met or exceeded the Contract utilization goals; or
- (✓) \_\_\_ Failed to meet the Contract utilization goals (attach waiver, substitution or modification); or
- (✓) \_\_\_ No goals applied to this Project.

5. CONTRACTOR certifies that each Subcontractor has received full payment for its respective work in connection with the Contract.

6. If applicable, I hereby certify that (a) at project completion and pursuant to contractor's final request for payment, contractor achieved, company-wide, at least ten percent (12%) minority workforce participation and two percent (12%) women workforce participation and (2) a true and accurate copy of my final project workforce monthly report (HRD Form 00485.02 and final company-wide workforce monthly report (HRD Form 00485.03) are attached. **NOTE: This paragraph is only applicable if you completed a construction contract that was estimated by the City, prior to solicitation, as requiring more than 800 construction labor hours and costing in excess of \$324,000.01. If applicable you MUST attach copies of your final monthly workforce reports.**

7. This affidavit is made in behalf of the CONTRACTOR for the purpose of securing from Kansas City, Missouri, the certification of completion of the Project and receiving payment therefore.

8. If the Contract amount exceeded \$150,000, CONTRACTOR has submitted proof of compliance with the City tax ordinances administered by the City's Commissioner of Revenue and has on file proof of tax compliance from all Subcontractors. If the Contract term exceeded one (1) year, CONTRACTOR has provided proof of compliance with the City tax ordinances administered by the City's Commissioner of Revenue prior to receiving final payment and has on file proof of tax compliance from all Subcontractors prior to the Subcontractor receiving final payment from CONTRACTOR.

CONTRACTOR \_\_\_\_\_

By \_\_\_\_\_  
(Authorized Signature)

Title \_\_\_\_\_

On this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, before me appeared \_\_\_\_\_, to me personally known to be the \_\_\_\_\_ of the \_\_\_\_\_,

and who executed the foregoing instrument and acknowledged that (s)he executed the same on behalf of \_\_\_\_\_ as its free act and deed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal on the day and year first above written.

My commission expires:

\_\_\_\_\_  
Notary Public



# SUBCONTRACTOR AFFIDAVIT FOR FINAL PAYMENT

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

STATE OF MISSOURI )

) ss:

COUNTY OF \_\_\_\_\_ )

After being duly sworn the person whose name and signature appears below hereby states under penalty of perjury that:

1. I am the duly authorized officer of the business indicated below (hereinafter Subcontractor) and I make this affidavit on behalf of Subcontractor in accordance with the requirements set forth in Section 290.290, RSMo. Subcontractor has completed all of the Work required under the terms and conditions of a subcontract as follows:

Subcontract with: \_\_\_\_\_, Contractor

Work Performed: \_\_\_\_\_

Total Dollar Amount of Subcontract and all Change Orders: \$ \_\_\_\_\_

City Certified  MBE  WBE  DBE  NA

List certifications: \_\_\_\_\_

2. Subcontractor fully complied with the provisions and requirements of the Missouri Prevailing Wage Law set forth in Sections 290.210, RSMo through 290.340, RSMo.

**Business Entity Type:**

- Missouri Corporation
- Foreign Corporation
- Fictitious Name Corporation
- Sole Proprietor
- Limited Liability Company
- Partnership
- Joint Venture
- Other (Specify)

**Subcontractor's Legal Name and Address**

\_\_\_\_\_

Phone No. \_\_\_\_\_

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

E:mail: \_\_\_\_\_

Federal ID No. \_\_\_\_\_

I hereby certify that I have the authority to execute this affidavit on behalf of Subcontractor.

By: \_\_\_\_\_

(Signature)

\_\_\_\_\_

(Print Name)

\_\_\_\_\_

(Title)

\_\_\_\_\_

(Date)

**NOTARY**

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

My Commission Expires: \_\_\_\_\_

By \_\_\_\_\_

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

\_\_\_\_\_  
Title

## **SECTION 01300 – SUBMITTALS**

### **PART 1 - GENERAL**

#### **1.01 SUMMARY**

- A. This section provides for the submittals required by the City prior to the start of work and, as required, for the duration of the Work.
- B. All submittals shall be clearly identified by reference to a specification section and/or detail drawing. Submittals shall be clear and legible and shall include sufficient presentation of the data.
- C. No portion of the work requiring a shop drawing, product data or sample shall be started nor shall any materials be fabricated or installed prior to the completion of the submittal process described herein. Fabrication performed, purchased materials or on-site construction accomplished prior to completing the submittal process as defined herein shall be at the Design-Builder's sole risk. The City shall not be liable for any expense or delay to complete the submittal process.

#### **1.02 RELATED SECTIONS**

- A. Section 00700 DB – General Requirements:
  - 1. Article 2, paragraph 2.06 – Shop Drawings and Samples
  - 2. Article 6, paragraph 6.05 – Progress Schedule.
  - 3. Article 6, paragraph 6.06 – Recovery Schedule.
  - 4. Article 6, paragraph 6.06 – Substitute and “Or-Equal” Items.
  - 5. Article 6, paragraph 6.11 – Design-Builder's Responsibility for Project Safety
  - 6. Article 13, paragraph 13.01 – Schedule of Values
  - 7. Article 13, paragraph 13.02 – Monthly Progress Payments
- B. Section 01019 – Closeout Procedures
- C. Section 01020 – Record Documents
- D. Section 01140 – Work Restrictions
- E. Section 01230 – Alternates
- F. Section 01320 – Construction Progress Documentation
- G. Section 01322 – Photographic and Video Documentation
- H. Section 01335 – Document Management
- I. Section 01757 – Commissioning
- J. Section 01783 – Operation and Maintenance Data
- K. Section 01800 – Operational Change Control Plan

#### **1.03 GENERAL INFORMATION**

- A. Definitions:
  - 1. Shop Drawings, product data and Samples are technical Submittals prepared by the Design-Builder, Subcontractor, manufacturer or Supplier and submitted by Design-Builder to the City for review and comment as a basis of the use of Equipment and Materials proposed for incorporation in the Work or needed to describe installation, operation, maintenance or technical properties, as specified in each Division of the Specifications:
    - (a) Shop Drawings include custom-prepared data of all types including drawings, diagrams, performance curves, material schedules, templates, instructions and similar information.

- (b) Product data includes standard printed information on materials, products and systems; not custom-prepared for this Project, other than the designation of selections from available choices.
  - (c) Samples include both fabricated and physical examples of materials, products and Work; both as complete units and as smaller portions of units of Work; either for limited visual inspection or (where indicated) for more detailed testing and analysis. Mock-ups are a special form of Samples which are too large to be handled in the specified manner for transmittal of Sample Submittals.
  - (d) Spare parts: Describe spare parts necessary for the Owner's use in facility operation and maintenance; identify the type and quantity, but include the actual characteristics of the spare parts in Product as part of the specification of the product.
  - (e) Tools: Tools are generally defined as items such as special wrenches, gauges, circuit setters, and other similar devices required for the proper operation or maintenance of a system that would not normally be in the Owner's tool kit.
2. Informational Submittals are those technical reports, administrative Submittals, certificates and guarantees not defined as Shop Drawings, product data or Samples:
- (a) Technical reports include laboratory reports, tests, technical procedures, technical records and Design-Builder's design analysis.
  - (b) Administrative Submittals are those nontechnical Submittals required by the Contract Documents or deemed necessary for administrative records. These Submittals include maintenance agreements, bonds, project photographs, physical work records, statements of applicability, copies of industry standards, project record data, schedules, security/protection/safety data and similar type Submittals.
  - (c) Certificates and guarantees are those Submittals on Equipment and Materials where a written certificate or guarantee from the manufacturer or Supplier is required in the Contract Documents.
  - (d) Manufacturer's Instructions: Instructions, stipulations, directions, and recommendations issued in printed form by the manufacturer of a product addressing handling, installation, erection, and application of the product; manufacturers' instructions are not prepared especially for the Work.
- B. Quality Requirements:
1. The Design-Builder shall submit Shop Drawings and Samples in accordance with Section 00700 DB.
  2. Submittals such as Shop Drawings and product data shall be of suitable quality for legibility and reproduction purposes. Every line, character and letter shall be clearly legible. Drawings shall be useable for further reproduction to yield legible hard copies.
  3. All submittals by subcontractors shall be sent directly to the Design-Builder for checking. The Design-Builder shall be responsible for their submission at the proper time to prevent delays.
  4. The Design-Builder shall check all subcontractors' submittals regarding measurements, sizes, materials and details to determine and verify that they meet the requirements of the Contract Documents. Submittals found to be inaccurate or otherwise in error shall be returned to the subcontractors for correction before submission to the City.
  5. Certificates of Compliance – Where indicated in these specifications, each submittal shall include a certificate of compliance prepared by the manufacturer or Supplier of the submitted data, certifying that the item covered complies with Contract Documents. The certificate of compliance shall be a separate document and shall include identification of all deviations, if any, from the Contract Documents.

C. Submittal Completeness:

1. The Design-Builder shall accept full responsibility for the completeness of each submission. When an item consists of components from several sources, the Design-Builder's initial submittal on the item shall include all components.
2. Submittals shall be complete with respect to dimensions, design criteria, materials of construction and other information specified to enable the City or Designee to review the information effectively.
3. Where standard drawings are furnished which cover several variations of the general class of Equipment, each drawing shall be annotated to indicate exactly which parts of the drawing apply to the Equipment being furnished. Use hatch marks to indicate variations that do not apply to the Submittal. The use of "highlighting markers" will not be an acceptable means of annotating Submittals. Annotation shall also include proper identification of the Submittal permanently attached to the drawing.
4. Reproductions or copies of Contract Drawings or portions thereof will not be accepted as complete fabrication or erection drawings. The Design-Builder may use a reproduction of Contract Drawings for erection drawings to indicate information on erection or to identify detail drawing references. Whenever the Drawings are revised to show this additional Design-Builder information, the Design Professional's title block shall be replaced with Design-Builder's title block and the Design Professional's professional seal shall be removed from the drawing. The Design-Builder shall revise these erection drawings, as needed, for subsequent Design Professional revisions to the Contract Drawings.

D. Form of Submittals:

1. Submittals and other Project documents shall be transmitted in electronic format and non-electronic format as specified.
2. Design-Builder shall provide a submittal registry prior to the pre-con meeting that is suitable for upload to the City's Document Management program.
3. Electronic Format:
  - (a) Transmit Submittals and Project documents utilizing:
    - (i) Adobe ".pdf" files created directly from native electronic format or City-approved equal file type and format.
    - (ii) Electronic submittal ".pdf" files are not to be combined files or collections of files/drawings. Each drawing document must stand alone.
    - (iii) Each file will be right reading and oriented the same for all consecutive resubmissions.
    - (iv) For any given Submittal, the filename and format shall be consistent for initial submission and subsequent revisions of the same. Use consistent naming convention throughout. Reference to revision or dates shall not be included in a filename.
    - (v) Files greater than 5 pages shall have table of contents with bookmarks for each section. The Sections shall have easily understood names.
    - (vi) Submittals not meeting the above criteria are subject to rejection.
  - (b) Provide Project Record Documents, equipment instruction books and operating and maintenance manuals and any other documents, as required, in a file type and format approved by City.
4. Non-electronic Format:
  - (a) Selected Submittals may be provided in paper (hard copy), as well, only with advance approval of the City and using procedures specified herein.
  - (b) Equipment instruction books and operating manuals shall be provided in hardcopies in addition to the specified electronic format.

- E. Transmittal of Submittals:
1. Submittal register shall be uploaded prior the transmission of the first submittal.
  2. All submittals, regardless of origin, shall be stamped with the approval of the Design-Builder and identified with the name and number of this Contract, Contractor's or Design-Builder's name, references to applicable specification paragraphs and Contract Drawings and version of the submittal. Submittals can be named for their specification if the submittals cover the full scope of work in said specification.
  3. Each submittal shall indicate the intended use of the item in the Work. When catalog pages are submitted, applicable items shall be clearly identified and inapplicable data crossed out. The current revision, issue number and date shall be indicated on all drawings and other descriptive data. The Design-Builder's stamp of approval is a representation to the City and Design Professional that the Design-Builder accepts full responsibility for determining and verifying all quantities, dimensions, field construction criteria, materials, catalog numbers and similar data, and the Design-Builder has reviewed and coordinated each submittal with the requirements of the Work and the Contract Documents.
  4. Electronic Submittals – The Design-Builder shall utilize the City's document management system as specified in Section 01335- Document Management for managing, tracking and storing documents associated with the Project. If an internet-based document management system is to be used, additional requirements are provided in Section 01335- Document Management. The Design-Builder shall comply with the file protocols and procedures for the document management system.
  5. Approved submittals shall be tagged per City's metadata tagging standard and provided to the City as part of the Electronic O&M Manual.
- F. Submittals Required for the Preconstruction Conference:
1. Following are the minimum required submittals to be provided by the Design-Builder at the pre-construction conference:
    - (a) General Requirements:
      - (i) Preliminary Project Schedule including Submittals.
      - (ii) Preliminary Schedule of Values.
      - (iii) Preliminary Submittal Registry.
      - (iv) Listing of Subcontractors.
      - (v) Project Sign Request.
      - (vi) List of Major Equipment utilized.
      - (vii) Safety Representative.
    - (b) Document Management can be found in Section 01335 – Document Management.
- G. In order to allow expedited review submittals on the sections or topics below are required to have a pre-submittal meeting:
1. Commissioning Schedule.
  2. Sanitary Screens.
  3. First Factory Acceptance Test Plan.
  4. Switchgear and Transformer.
  5. PLC Programming.

## 1.04 SHOP DRAWINGS AND SAMPLES

### A. Shop Drawings:

1. Shop Drawings and engineering data covering all equipment and fabricated and building materials which will become a permanent part of the Work under this Contract shall be submitted to the City or Designee for review as specified herein. The data shall include drawings, descriptive information, sufficient detail to show the kind, size, arrangement

and operation of component materials and devices; the external connections, anchorages and supports required; performance characteristics; and dimensions needed for installation and correlation with other materials and equipment.

2. All deviations from the Contract Documents shall be identified on each submittal and shall be tabulated in the Design-Builder's letter of transmittal. Such submittals shall, as pertinent to the deviation, indicate essential details of all changes proposed by the Design-Builder (including modifications to other facilities that may be a result of the deviation) and all required piping and wiring diagrams.

B. Product Data:

1. Product data as specified in individual Sections, include, but are not necessarily limited to, standard prepared data for manufactured products (sometimes referred to as catalog data), such as the manufacturer's product specification and installation instructions, availability of colors and patterns, manufacturer's printed statements of compliances and applicability, roughing-in diagrams and templates, catalog cuts, product photographs, standard wiring diagrams, printed performance curves and operational-range diagrams, production or quality control inspection and test reports and certifications, mill reports, product operating and maintenance instructions and recommended spare-parts listing and printed product warranties, as applicable to the Work.
2. If applicable, submittals for equipment shall include a listing of all installations where identical or similar equipment has been installed and been in operations for a period of at least one year.
3. Certificates are statements printed on the manufacturer's or supplier's letterhead and signed by responsible officials of manufacturer of product, system or material. Certifications shall provide a clear statement that the product, system or material meets the specified requirements of Contract Documents. All certificates shall be dated after the Effective Date of the contract and shall clearly indicate the project name and project number.

C. Samples:

1. Samples specified in individual Sections, include, but are not necessarily limited to, physical examples of the work such as sections of manufactured or fabricated work, small cuts or containers of materials, complete units of repetitively used products, color/texture/pattern swatches and range sets, specimens for coordination of visual effect, graphic symbols and units of work to be used by the City or Designee for independent inspection and testing, as applicable to the Work.

D. Instruction Books and Operating and Manuals:

1. Per Section 01783 – Operation Maintenance Data

E. Record Documents

1. Per Section 01019 Closeout Procedures, 01783 Operation Maintenance Data, 01020 Record Documents, 01322 Photographic and Video Documentation

F. Survey Data

1. All field books, notes, videotapes, and other data developed by Design-Builder in performing surveys required as part of the Work shall be available to City for examination throughout the construction period.
2. All such data shall be submitted to City with the other documentation required for final acceptance of the Work.

## 1.05 SCHEDULES

### A. 01320 - Construction Progress Documentation

## 1.06 COMMISSIONING SUBMITTALS

### A. Section 01757 Commissioning

1.07 CONSTRUCTION PROGRESS PHOTOGRAPHS AND VIDEOS

- A. Section 01320 Construction Progress Documentation
- B. Photos and Videos documenting assets that will not be visible during the substantial completion walkthrough shall have their record photos taken prior to be obscured by backfill, equipment installation, gypsum board installation, etc... Record photos shall have metadata tags per KC Water standards.

1.08 WARRANTY and BONDS and CLOSEOUT SUBMITTALS

- A. Section 01019 Closeout Procedures, Section 00800 DB Supplementary Conditions, and 00700 DB General Conditions

1.09 SCHEDULE OF VALUES

- A. The DESIGN-BUILDER shall prepare and submit to the OWNER for approval by the preconstruction conference, a Schedule of Values for and covering the Lump Sum Price Bid as shown in the Proposal. The Schedule of Values shall show the estimated total number of construction units for each kind of work and the value of each unit.
- B. Each price listed shall include all overhead, other costs, DESIGN-BUILDER's profit and the total estimated value of the items of work listed in the Schedule of Values shall equal the Contract Lump Sum Price covered by the estimate. Overhead and profit are not to be listed as separate items.
- C. An unbalanced schedule of values providing for overpayment of DESIGN-BUILDER on items of Work which would be performed first will not be approved. The Schedule of Values shall be revised and resubmitted until acceptable to the OWNER. Final acceptance by OWNER shall indicate only consent to the Schedule of Values as a basis for preparation of applications for progress payments and shall not constitute an agreement as to the value of each indicated item.

1.10 CITY OR DESIGNEE'S REVIEW OF DRAWINGS AND DATA

- A. The City or Designee's review of drawings and data submitted by Design-Builder will cover only general compliance with the Construction Contract Documents. The City or Designee's review does not indicate a thorough review of all dimensions, quantities and details of the material, equipment, device or item shown. The City or Designee's review shall not relieve Design-Builder of Design-Builder's responsibility for errors, omissions or deviations in the drawings and data, nor of sole responsibility for compliance with the Construction Contract Documents.
- B. The City or Designee's submittal review period shall be 21 consecutive calendar days in length and shall commence on the first calendar day immediately following the date of arrival of the submittal or resubmittal in the City or Designee's office. The time required to mail the submittal or resubmittal back to Design-Builder shall not be considered a part of the submittal review period.
- C. Design-Builder may request an expedited review of a limited number of submittals. The City may elect to require a workshop to facilitate this expedited review. A maximum of one workshop per week will be allowed.
- D. Submittals shall be returned to the Design-Builder under one of the following assignments:
  - 1. "Approved" is assigned when there are no notations or comments on the submittal. When returned, the Design-Builder may release the equipment and/or material for manufacture.
  - 2. "Approved as Noted" is assigned when a confirmation of the notations and comments is not required by the Design-Builder. The Design-Builder may release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product.



3. "Revise and Resubmit" is assigned when the submittal does not meet the intent of the Construction Contract Documents. The Design-Builder must resubmit the document revised to bring the submittal into compliance with Contract Documents. "Revise and Resubmit" is also assigned when notations and comments are extensive enough to require a resubmittal of the package.
  4. "Rejected" is assigned when the submittal does not meet the intent of the Construction Contract Documents. The Design-Builder must resubmit the entire package revised to bring the submittal into compliance with Contract Documents. It may be necessary to resubmit using a different manufacturer/vendor to meet the Construction Contract Documents. "Rejected" is also assigned when the notations and comments are extensive enough to require a resubmittal of the package.
  5. "For Record Only" is assigned when the submittal is provided as a courtesy to the City or as a contractual requirement by the Design-Builder. Design-Builder has no further action required. Submittal is for supplementary information only; pamphlets, general information sheets, catalog cuts, standard sheets, test reports, manufacturer's or supplier's letters included with submittal data, unmarked catalog data, bulletins and similar data, all of which are useful to Owner in design, operation, or maintenance, but which by their nature does not constitute a basis for determining that items represented thereby conform with the design concept or comply with the intent of the Contract Documents. It is not subject to Owner's review and acceptance, and is being filed for Record Copy purposes only. This is generally used in acknowledging receipt of means and methods of construction work plans, filed conformance test reports, health and safety plans, or structural design by the Design-Builder's or Design-Builder's Engineer of Record, etc.
- E. If the Design-Builder considers any correction indicated on the shop drawings to constitute a change to the Contract Documents, the Design-Builder shall give written notice thereof to the City or Designee at least seven working days prior to release for manufacture.
- F. Resubmittal of Drawings and Data:
1. The Design-Builder shall accept full responsibility for the completeness of each resubmittal. The Design-Builder shall verify that all corrected data and additional information previously requested by the City or Designee are provided on the resubmittal. When corrected copies are resubmitted, the Design-Builder shall in writing direct specific attention to all revisions and shall list separately any revisions made other than those called for by the City or Designee on previous submissions.
  2. Requirements specified for initial submittals shall also apply to resubmittals. Resubmittals shall bear the number of the first submittal followed by a letter (A, B, etc.) to indicate the sequence of the resubmittal.
  3. Resubmittals shall be made within thirty (30) days of the date of the letter returning the submittal to be modified or corrected; unless, within 14 days, the Design-Builder submits an acceptable request for an extension of the stipulated period, listing the reasons the resubmittal cannot be completed within the specified time.
  4. Any need for more than one resubmission or any other delay in obtaining the City or Designee's review of submittals, will not entitle the Design-Builder to an extension of the Contract Times, unless: the delay of the Work is directly caused by a change in the Work authorized by a Change Order or by failure of the City or Designee to review the submittals within the submittal review period specified herein.

## PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION  
Not used

END OF SECTION



# TRANSMITTAL LETTER

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

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TO: \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Re: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

ATTN: \_\_\_\_\_

---

We are sending you  Attached  Under separate cover via \_\_\_\_\_ the following items:  
 Shop Drawings  Prints  Drawings  Samples  Specifications  
 Copy of Letter  Change Order  \_\_\_\_\_

Copies	Date	No.	Description

These are transmitted as checked below:

For Approval  Approved as Submitted  Resubmit \_\_\_\_\_ Copies for Approval  
 For Your Use  Approved as Noted  Submit \_\_\_\_\_ Copies for Distribution  
 As Requested  Returned for Corrections  Return \_\_\_\_\_ Corrected Prints  
 For Review and Comment  \_\_\_\_\_

Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

By: \_\_\_\_\_

- Distribution:
- Owner
  - Contractor
  - Construction Manager
  - Design Professional
  - Consultant
  - Other

## SECTION 01310

### PROJECT MANAGEMENT AND COORDINATION

#### PART 1 GENERAL

##### 1.01 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project.

1. The Design-Builder shall furnish all labor, materials, equipment, and incidentals as necessary to comply with these requirements including but not limited to the following and as required herein:

- a. General project coordination procedures
- b. Conservation
- c. Coordination Drawings
- d. Administrative and supervisory personnel
- e. Project meetings

##### 1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract; including General and Supplementary Conditions, all applicable Division 1 Sections, and all applicable Division Sections; apply to this Section.

##### 1.03 PRECONSTRUCTION CONFERENCE

A. Prior to the commencement of Work at the site, a preconstruction conference will be held at a mutually agreed time and place. Owner will provide agenda. The conference shall be attended by:

- 1 Design-Builder and their superintendent.
- 2 Designer of Record and supporting personnel.
- 3 Principal Subcontractors.
- 4 Representatives of Owner.
- 5 Governmental representatives as appropriate.
- 6 Others as requested by Design-Builder, or Owner.

B. Unless previously submitted to Water Services Department, Design-Builder shall bring to the conference a tentative schedule for each of the following:

- 1 Progress.
- 2 Procurement.
- 3 Values for progress payment purposes on the City provided form.
- 4 Shop Drawings and other submittals.

C. The purpose of the conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and

procedures for handling such matters established. The agenda will include but not limited to:

- 1 Design-Builder's tentative schedules
  - a. Verify availability of qualified personnel needed to develop and update schedule.
  - b. Discuss constraints, including phasing, work stages, area separations, interim milestones, and partial Owner occupancy.
  - c. Review delivery dates for Owner-furnished products.
  - d. Review time required for review of submittals and re-submittals.
  - e. Review time required for completion and start-up procedures.
  - f. Review and finalize list of construction activities to be included in schedule.
  - g. Review submittal requirements and procedures.
  - h. Review procedures for updating schedule.
- 2 Transmittal, review, and distribution of Design-Builder's submittals.
- 3 Processing applications for payment.
- 4 Maintaining record documents.
- 5 Critical Work sequencing.
- 6 Field decisions, Change Orders, and Work Change Directives.
- 7 Use of premises, office and storage areas, security, housekeeping, and Owner's needs.
- 8 Major equipment deliveries and priorities.
- 9 Design-Builder's assignments for safety and first aid.

D Water Services Department will preside at the conference and will arrange for keeping the minutes and distributing the minutes to all persons in attendance.

#### 1.04 PROGRESS MEETINGS

- A Design-Builder shall schedule and hold regular progress meeting at least monthly and at other times as requested by Water Services Department or required by progress of the Work. Design-Builder, Water Services Department and all Subcontractors active on the site shall be represented at each meeting. Design-Builder may at their discretion request attendance by representatives of his suppliers, manufacturers, and other Subcontractors.
- B Design-Builder shall preside at the meetings and provide for keeping and distribution of the minutes. The purpose of the meetings will be to review the progress of the Work, maintain coordination of efforts, discuss changes in scheduling, and resolve other problems which may develop.

PART 2: PRODUCTS (Not Used)

PART 3: EXECUTION (Not Used)

END OF SECTION

## **SECTION 01320 – CONSTRUCTION PROGRESS DOCUMENTATION**

### **PART 1 - GENERAL**

#### **1.01 SUMMARY**

- A. This Section includes administrative and procedural requirements for documenting the construction process beginning with the Notice of Intent to Contract and continuing through completion of the Work performed and Construction Contract close out.
- B. The Contractor or Design-Builder shall furnish all labor, materials, equipment and incidentals as necessary to comply with these requirements including but not limited to the following and as required herein:
  - 1. Preliminary Project Schedule.
  - 2. Project Baseline Schedule.
  - 3. Progress Schedule.
  - 4. Recovery Schedules.
  - 5. Submittals Schedule.
  - 6. Daily Labor Force reports.
  - 7. Material location reports.
  - 8. Field condition reports.
  - 9. Special reports.
  - 10. Commissioning
  - 11. O&M Data
  - 12. Electronic O&M Manuals
  - 13. Testing
  - 14. Acceptance Testing
  - 15. Photographic and Video Documentation.

#### **1.02 RELATED SECTIONS**

- A. Drawings and general provisions of the Contract; including General and Supplementary Conditions, all applicable Division 01 Sections, and all applicable Division Sections; apply to this Section.
- B. Section 00700 DB – General Requirements:
  - 1. Article 2, paragraph 2.06.A.1 – Preliminary Project Schedule.
  - 2. Article 2, paragraph 2.06.A.2 – Preliminary Schedule of Shop Drawings.
  - 3. Article 2, paragraph 2.07.A – Acceptable Schedule.
  - 4. Article 2, paragraph 2.07.B – Project Baseline Schedule.
  - 5. Article 6, paragraph 6.05– Progress Schedule.
  - 6. Article 6, paragraph 6.06 – Recovery Schedule.
- C. Section 01000 – General Project Requirements
- D. Section 01019 – Closeout Procedures
- E. Section 01020 – Record Documents
- F. Section 01140 – Work Restriction
- G. Section 1322 – Photographic and Video Documentation
- H. Section 01757 – Commissioning
- I. Section 01783 – Operation and Maintenance Data
- J. Section 01800 – Operational Change Control Plan
- K. Section 01914 – Equipment Testing and System Startup

### 1.03 CODES AND STANDARDS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.
- B. American Association of Cost Engineers (AACE):
  - 1. Comply with recommended practices.

### 1.04 SUBMITTALS

- A. Scheduler Qualifications – For firms and persons preparing schedules, submit qualifications as required by Table 1 to demonstrate their capabilities and experience. Include lists of completed projects with the following information:
  - 1. Project name.
  - 2. Project location.
  - 3. Name and address of engineer, architect or Contractor or Design-Builder for which schedules were prepared.
  - 4. Name and address of client.
  - 5. Project Duration at Bid & Project Duration.
  - 6. Other information and pertinent.
- B. Preliminary Schedule of Shop Drawings (Submittals) – Arrange the following information in a tabular format or a format that is compatible with entry into the City’s document management system:
  - 1. Scheduled date for each first submittal.
  - 2. Specification Section number and title.
  - 3. Submittal category (action or informational).
  - 4. Name of subcontractor.
  - 5. Description of the Work covered.
  - 6. If a Pre-Submittal Workshop is required
  - 7. If the Contractor or Design-Builder will request expedited review.
  - 8. Scheduled date for City’s final approval.
- C. Standard Schedule Format – Layout for all schedules and reports shall follow the standard format in the following order, activity ID, activity name, original duration, remaining duration, percent complete, start, finish, late start, late finish, total float, baseline variance, predecessor, successor, and resource ID.
- D. Preliminary Project Schedule (Design-Build Only) – Submit in native electronic format and \*PDF format. PDF sheet size shall sufficiently large enough to legibly show entire schedule for entire construction period.
  - 1. Include:
    - (a) CPM Report
    - (b) Native File
- E. Baseline Project Schedule – Submit in native electronic format and \*PDF format. PDF sheet size shall sufficiently large enough to legibly show entire schedule for entire construction period.
  - 1. Include:
    - (a) CPM Report
    - (b) Resource Loaded
    - (c) Native File
- F. Progress Schedules – Submit in native electronic format and \*PDF format. PDF sheet size shall sufficiently large enough to legibly show entire schedule for entire construction period.
  - 1. Include:
    - (a) CPM Report

- (b) Activity report
    - (1) A list of all activities sorted by activity number and early start date, or actual start date, if known.
  - (c) Logic Report
    - (1) A list of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
  - (d) Total Float Report
    - (1) A list of all activities sorted in ascending order of total float.
  - (e) Daily Labor Force Report
  - (f) Material Location Report
  - (g) Field Condition Report
  - (h) City may request a cost and resource loaded schedule if the project has insufficient float or multiple overlapping critical paths.
- G. Commissioning Schedule Section 01757 - Commissioning
  - H. Special Reports – Submit special reports within one day of an occurrence.
  - I. Daily Construction Reports – Submit at weekly intervals.
  - J. Four Week look ahead – Schedules provided at each progress meeting that indicate with work activities will be occurring over the next 4 weeks and what was accomplished the previous week.
    - 1. The activity designations used in the four week look ahead must be consistent with those used in the baseline schedule and the monthly schedule updates.

## 1.05 DEFINITIONS

- A. Activity:
  - 1. A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
  - 2. Critical activities are activities on the critical path. They must start and finish on the planned start and finish times.
  - 3. Predecessor activity is an activity that must start or complete before a given activity can be started. No negative lag is allowed.
  - 4. Successor activity is an activity that can not start until the predecessor activity allows it. No negative lag is allowed.
- B. Cost Loading: All WBS summary activities are cost loaded. The sum total of all cost loaded activities shall equal the total Contract Price of the Contract, including Owner-approved change orders. This shall be equivalent to the total of the Schedule of Values for the Project.
- C. CPM (Critical Path Method) – A schedule network analysis technique used to determine the amount of scheduling flexibility (the amount of float) on various logical network paths in the project schedule network, and to determine the minimum total project duration. Start and finish dates are calculated by means of a forward pass, using a specified start date. Late start and finish dates are calculated by means of a backward pass, starting from a specified completion date, which sometimes is the project early finish date determined during the forward pass.
- D. Critical Path – Generally, but not always, the sequence of schedule activities determining the duration of the project. Generally, it is the longest path through the project. However, a critical path can end, as an example, on a schedule milestone that is in the middle of the schedule model and that has a finish-on-or-before imposed date schedule constraint.
- E. Event – The starting or ending point of an activity.



- F. Float – The measure of leeway in starting and completing an activity. Float time is not for the exclusive use or benefit of either City or Contractor or Design-BUILDER, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the following activity. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- G. Fragnet – A partial or fragmentary network that breaks down activities into smaller activities for greater detail.
- H. Gantt Chart – A graphic display of schedule-related information. In the typical Gantt chart, schedule activities or work breakdown structure components are listed down the left side of the chart, dates are shown across the top and activity durations are shown as date-placed horizontal bars. Also known as a Bar chart.
- I. Lag – An offset or delay from an activity to its successor. It is based on the calendar of the successor activity.
- J. Major Area – A significant construction element.
- K. Major Procurement – As discussed in Section 00700 DB, paragraph 2.06.A.1, Major Procurement shall further defined as any materials that fall within the critical path and/or have a lead time of 30 days or greater.
- L. Milestone – A key or critical point in time for reference or measurement.
- M. Network Diagram – A graphic diagram of a network schedule, showing activities and activity relationships.
- N. Schedule Level –
  - Detailed Schedule by Task – This level of detail will support the short-term planning for the field, normally for those activities of less than 1-week duration. It is used for workforce supervisors to plan and coordinate work at the detail level. City must approve of any activities greater than 1 week duration.
- O. WBS (Work Breakdown Structure) – A deliverable-oriented hierarchical decomposition of the work to be executed by the project team to accomplish the project objectives and create the required deliverables. It organizes and defines the total scope of the project. Each descending level represents an increasingly detailed definition of the project work. The WBS is decomposed into work packages. The deliverable orientation of the hierarchy includes both internal and external deliverables. See also Schedule Levels.
- P. Work Package – A deliverable or project work component at the lowest level of each branch of the WBS. The work package includes the schedule activities and schedule milestones required to complete the work package deliverable or project work component.
- Q. Resource Loading: WBS activities has the allocated resources necessary to complete the WBS.
- R. Schedule of Monthly Payments – Estimated monthly progress payments based on Baseline Schedule and Schedule of Values for each Month for the duration of the project.
- S. City Activity: an activity required by the project that will be performed by the City or their designee outside the contract.

## 1.06 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities including the scheduling and reporting of separate Design-BUILDER's or Subcontractors performing construction activities related to project.
- B. Coordinate Progress Schedules with the Schedule of Values, to estimate a Schedule of Monthly Payments, list of subcontractors, Preliminary Schedule of Shop Drawings and Samples, progress reports, Application for Payment, and other required schedules and reports.

- C. Secure time commitments for performing critical elements of the Work from parties involved. Time commitments should be captured within the schedule.

1.07 TRAINING SCHEDULE: NOT USED

- A. NOT USED.
- B. NOT USED.

1.08 Design-Builder shall send an updated training schedule every 3 months, and Design-Builder shall indicate which training sessions are tentative or firmly scheduled. SCHEDULE LEVEL

- A. If a Recovery Schedule is deemed necessary by the City in accordance with Section 00700 DB – General Conditions, it shall be developed as a cost and resource loaded schedule.

1.09 SCHEDULING SOFTWARE

- A. Prepare schedules using the latest version of Primavera version P6 or higher or Microsoft Project.

1.10 PRELIMINARY SCHEDULE OF SHOP DRAWINGS AND SAMPLES

- A. Preparation – Provide a schedule of submittals arranged in chronological order by date required by the construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery as set forth in the Contract Documents, when establishing dates.
- B. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, the estimated Schedule of Monthly Payments, and Progress Schedules.
- C. Include Shop Drawing and Sample Submittals required during the first 60 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
- D. At Design-Builder's option, show submittals on the Preliminary Progress Schedule, instead of tabulating them separately.

1.11 SCHEDULE REQUIREMENTS

- A. Requirements According to Schedule Level – Contractor or Design-Builder shall provide the following information.

Item	Requirement
Procedures	Comply with procedures contained the American Association of Cost Engineers (AACE) recommended practices.
Time Frame	Extend project schedule from date established for the Notice to Proceed to the date of Final Completion.
Contract Times	Contract Times shall not be changed unless specifically authorized by Change Order.
Activities	Treat separate major areas as a separate numbered activity for each principal element of the Work. (WBS)
Activity Duration	Define activities so none is longer than 7 days, unless specifically allowed by City

Item	Requirement
Milestones	Include milestones indicated in the Contract Documents in schedule, including, but not limited to, all zero duration events, the Notice to Proceed, Substantial Completion, and Final Completion.
Computer Software	Prepare schedules using the latest version of Primavera version P6 or higher or Microsoft Project.
Scheduler's Qualifications	Submit scheduler's qualifications for review and approval
Submittal Review Time	Include review and re-submittal times for review of Shop Drawings and Samples. Each item listed in the Preliminary Schedule of Shop Drawings and Samples shall be included in the schedule.
Procurement Activities	Include separate activities for the procurement process of long-lead and major items that require a cycle of more than 30 days or fall within the critical path. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
Startup and Testing Time	See Sections -01757 Commissioning, 01914 Equipment Testing and System Startup. Incorporate all these requirements with appropriate lead times into the project schedule.
Phasing	Arrange list of activities on schedule by phase.
Submittal Review Time	Include review and re-submittal times for review of Shop Drawings and Samples. Each item listed in the Preliminary Schedule of Shop Drawings and Samples shall be included in the schedule.
City Activities	Include a separate activity for each area of the Work performed by City and a separate activity for notifying the City if contractually required or requested.
Products Ordered in Advance	Include a separate activity for each product. Delivery dates indicated stipulate the earliest possible delivery date.
City-Furnished Products	Include a separate activity for each product. Delivery dates indicated stipulate the earliest possible delivery date.
Work Restrictions	<p>Show the effect of the following items on the schedule:</p> <ul style="list-style-type: none"> <li>• Coordination with existing construction.</li> <li>• Limitations of continued occupancies.</li> <li>• Uninterruptible services.</li> <li>• Partial utilization before Substantial Completion.</li> <li>• Use of premises restrictions.</li> <li>• Provisions for future construction.</li> <li>• Seasonal variations.</li> <li>• Environmental control.</li> </ul>
Work Stages	<p>Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:</p> <ul style="list-style-type: none"> <li>• Subcontract awards.</li> <li>• Submittals.</li> <li>• Purchases.</li> <li>• Fabrication.</li> <li>• Sample testing.</li> <li>• Deliveries.</li> </ul>

Item	Requirement
	<ul style="list-style-type: none"> <li>• Installation.</li> <li>• Tests and inspections.</li> <li>• Adjusting.</li> <li>• Curing.</li> <li>• Startup and placement into final use.</li> </ul>
Area Separations	<p>Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities:</p> <ul style="list-style-type: none"> <li>• Contractor Mobilization</li> <li>• Procurement – Divided by Long Lead and Short Lead</li> <li>• Completion of abatement work</li> <li>• Completion of stud and nut replacement</li> <li>• Completion of non-destructive pipe testing</li> <li>• Completion of pipe coating system installation</li> <li>• Partial Utilization</li> <li>• Substantial Completion</li> <li>• Start of Acceptance Testing</li> <li>• End of Acceptance Testing</li> <li>• Achievement of Full Operations</li> <li>• Punch List and Final Corrections</li> <li>• Final Completion</li> </ul>
Contract Modifications	For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragments to demonstrate the effect of the proposed change on the overall project schedule.
Work under More than One Contract or Subcontract.	Include a separate activity for each contract or subcontract.
Detailed by Work Package	Include detailed information by each work package and display all activities to be accomplished by the workforce with durations of 7 or more calendar days
Detail by Task	Include detail by task to support the short-term planning for the field, normally for those activities of less than 1-week duration.

**B. Cost Correlation:**

1. At the head of schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of the Work performed as of dates used for preparation of payment requests.

**1.12 PRELIMINARY AND BASELINE PROJECT SCHEDULES**

- A. Indicate each significant construction activity separately. Identify each Monday of each week with a continuous vertical line. Outline significant construction activities for the first 60 days of construction. Include skeleton diagram for the remainder of the Work.
- B. Preliminary Network Diagram – Outline significant construction activities for the project. To be submitted with the Preliminary Progress Schedule.
- C. Cost Loaded
- D. Baseline Schedule shall be resource loaded.

### 1.13 PROGRESS REPORTS AND SCHEDULES

- A. General – Prepare Progress Schedules using a CPM network analysis diagram and be cost loaded.
- B. CPM Schedule Preparation – Prepare a list of all activities required to complete the Work. Using the preliminary network diagram, prepare a skeleton network to identify probable critical paths:
  1. Activities – Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
    - (a) Preparation and processing of submittals.
    - (b) Purchase of materials.
    - (c) Delivery of materials and equipment.
    - (d) Fabrication.
    - (e) Installation.
  2. Processing – Process data to produce output data or a computer-drawn, time scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
  3. Format – Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges:
    - (a) Sub-networks on separate sheets are permissible for activities clearly off the critical path. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 30 days after date established for the Notice to Proceed.
    - (b) Establish procedures for monitoring and updating CPM schedule and for reporting progress monthly. Coordinate procedures with progress meeting and payment request dates.
    - (c) Use "one calendar day" as the unit of time.
  4. Initial Issue of Schedule – Prepare initial network diagram from a list of straight "early start-total float" sort. Identify critical activities. Prepare tabulated reports showing the following:
    - (a) Contractor or subcontractor and the Work or activity.
    - (b) Description of activity.
    - (c) Principle events of activity.
    - (d) Immediate preceding and succeeding activities.
    - (e) Early and late start dates.
    - (f) Early and late finish dates.
    - (g) Activity duration in days.
    - (h) Total float or slack time.
    - (i) Average size of workforce.
  5. Schedule Updating – Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
    - (a) Identification of activities that have changed added or deleted.
    - (b) Changes in logic ties.
    - (c) Changes in early and late start dates.
    - (d) Changes in early and late finish dates.
    - (e) Changes in activity durations in days.
    - (f) Changes in the critical path.
    - (g) Changes in total float or slack time.
    - (h) Changes in the Contract Time.
  6. Value Summaries – Prepare two cumulative value lists, sorted by finish dates:

- (a) In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
- (b) In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
- (c) In subsequent issues of both lists, substitute actual finish dates for activities completed as of last date.
- (d) Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.
- (e) In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
- (f) Submit value summary printouts one week before each regularly scheduled progress meeting.

C. Reports:

- 1. Daily Labor Force Reports – Prepare a daily labor force report recording the following information concerning events at Project site:
  - (a) List of subcontractors at Project site.
  - (b) List of separate Contractor or Design-Builders at Project site.
  - (c) List of all the Contractor or Design-Builder's and subcontractor's personnel showing hours worked in labor class at Project site.
- 2. Material Location Reports – At monthly intervals, prepare a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.
- 3. Field Condition Reports – Immediately on discovery of a difference between field conditions and the Contract Documents, prepare a detailed report. Submit electronically and directly to City with a request for information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

D. Special Reports:

- 1. General – Submit special reports within one day of an occurrence.
- 2. Reporting Unusual Events – When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events; persons participating; response by Contractor or Design-Builder's personnel; evaluation of results or effects; and similar pertinent information. Advise City in advance when these events are known or predictable.

## 1.14 SCHEDULE OF VALUES

- A. Requirements for Schedule of Values are specified in Article 2.06.A.3 of the General Conditions.

## PART 2 - PRODUCTS

Not used.

## PART 3 - EXECUTION

### 3.01 PROGRESS SCHEDULES

- A. Updates – At monthly intervals, update schedule to reflect actual construction progress and activities. Progress Schedule should be provided for review and approval prior to monthly pay request at a mutually agreed upon date each month to enable the City’s review to be complete by the agreed upon monthly pay application date. Progress Schedules will be reviewed and discussed at regularly schedule progress meetings. Design-Builder shall bring printed copies of CPM Schedule:
1. Revise schedule immediately after an activity revision has been recognized or made at the direction by the City. Issue updated schedule concurrently with the report of each such progress meeting.
  2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
  3. As the Work progresses, indicate actual completion percentage for each activity.
  4. Post copies in Project meeting rooms and temporary field offices.

### 3.02 MEETINGS

- A. Pre-Commencement Meeting for Design-Build Projects :
1. In accordance with Article 6.01.B of the General Conditions, Contractor or Design-Builder shall schedule and conduct a Pre-Commencement Meeting with Owner. This meeting is separate from the Preconstruction Conference and is intended to discuss issues affecting the administration of the Work and to implement the necessary procedures, including those relating to schedules, communication protocols, precise roles and responsibilities of individuals, HRD submittals, and payment, to facilitate the ability of the parties to perform their obligations under the Contract Documents.
  2. Review Payment Procedures as discussed in Contract Documents.
  3. Review scheduling requirements. These include but are not limited to schedule preparation, reporting requirements, manpower and equipment loading, updates, revisions, and schedule delay analysis. Contractor or Design-Builder shall present their schedule methodology, planned sequence of operations, resource loading methodology, and proposed activity coding structure.
  4. Mobilization and Engineering Schedule, Proposed Baseline Schedule, and Proposed Schedule of Values will also be reviewed, if desired by Contractor or Design- Builder.
  5. Minutes: Contractor or Design-Builder shall distribute meeting minutes 1 business day after the meeting.
- B. Preconstruction Conference:
1. Contractor or Design-Builder will schedule the Preconstruction Conference to occur before the start of general construction at a time convenient to Owner. Hold the conference at Project site or another convenient location. If Baseline Schedule is not ready for discussion at Preconstruction Conference, Owner and Design- Builder may modify, for the purpose of discussion at the Conference, the Mobilization and Engineering Schedule for early construction activities with defined scope and budget.
    - (a) Attendees: Authorized representatives of Owner, Owner’s Advisor, Design Professional, Design-Builder Key Personnel, major Subcontractors and others as appropriate shall attend the conference. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
    - (b) Agenda: Discuss items of significance that could affect progress, including the following:

- (1) Owner, Owner's Advisor, Design Professional, and Design-Build team member contacts, roles, responsibilities, communication requirements.
  - (2) Distribution of Contract Documents.
  - (3) Submission of Owner-approved updated Subcontractors and Major Material Suppliers List, Schedule of Values, and Baseline Schedule if changed from Pre-Commencement Meeting
  - (4) Schedules and Milestones.
  - (5) Design-Builder work zone and office trailer locations.
  - (6) Procedures: Includes change management, document controls, schedule management, submittals management, and RFIs.
  - (7) Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and contract closeout procedures.
  - (8) Project Record Document Requirements.
  - (9) Review of startup requirements and procedures.
  - (10) Lockout/tagout procedures and requirements.
  - (11) Use of the premises.
  - (12) Design-Builder and Owner will discuss additional areas for Design- Builder access.
  - (13) Responsibility for temporary facilities in accordance with Section 01500 - Temporary Facilities.
  - (14) Standard vehicle traffic onsite.
  - (15) Parking availability.
  - (16) Equipment deliveries and priorities.
  - (17) OCCPs.
  - (18) Project site safety requirements (safety vests, OSHA, HAZWOPER, etc.), and first aid.
  - (19) Plant/site Security/Access Procedures.
  - (20) Progress cleaning.
  - (21) Meetings.
  - (22) Working hours.
- (c) Minutes: Design-Builder shall record minutes and distribute electronic copies within 1 business days after meeting to participants, with copies to Design-Builder, Owner, and those affected by decisions made.
2. Prior to Preconstruction Conference, Design-Builder shall have submitted the following deliverables for discussion at meeting:
    - (a) Proposed Baseline Schedule.
    - (b) Mobilization and Engineering Schedule (modified as discussed above).
    - (c) Photo and Video Documentation Plan.
    - (d) Construction Safety Plan.
    - (e) List of Operational Change Control Plans lasting longer than one week.
    - (f) Quality Management Plan.
    - (g) Qualifications of Scheduler, Photographer, and any others as required by Specifications.
    - (h) And any other deliverables required by Specifications.
- C. Monthly Progress Meetings:
1. Design-Builder will schedule and administer formal progress meetings throughout progress of the Work at maximum monthly intervals with the first meeting scheduled approximately 30 calendar days after the Preconstruction Conference.



2. Design-Builder will make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings.
  3. Design-Builder shall provide printed copies of latest submitted progress schedules and Schedule Update.
  4. Attendance Required: Owner, Owner's Advisor, Design Professional, Design-Builder's Project Manager, Contractor or Design-Builder's Construction Manager (if different than the Project Manager), as appropriate to agenda topics for each meeting.
  5. Agenda shall be reoccurring and approved by Owner. Topics shall include:
    - (a) Review minutes of previous meetings.
    - (b) Review of Work progress and future Work.
    - (c) Review of safety record/events.
    - (d) Risk register/log.
    - (e) Change orders.
    - (f) Quality control.
    - (g) Pay application.
    - (h) Schedule reports.
    - (i) Discuss Stored Material for which the Design-Builder will be requesting payment.
    - (j) Commissioning.
  6. Minutes: Design-Builder will record changes for update and distribute electronic copies within 7 calendar days after meeting to participants and file on Owner's document management system.
- D. Weekly Coordination Meetings:
1. Upon start of construction, Design-Builder will schedule and administer meetings throughout progress of the Work at maximum weekly intervals.
  2. Design-Builder will make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings.
  3. Attendance Required: Owner, Owner's Advisor, Design Professional, Contractor or Design-Builder's Project Manager, Design-Builder's Construction Manager (if different than the Project Manager), Commissioning Manager, superintendents, major subcontractors and suppliers as appropriate to agenda topics for each meeting.
  4. Agenda:
    - (a) Review of Work progress.
    - (b) Field observations, problems, and decisions.
    - (c) Identification of problems delaying planned progress, hazards and risks.
    - (d) Review of critical submittals.
    - (e) Deviations in the previous week's 4-Week Schedule.
    - (f) Review of critical RFIs, change documents, issues and action items.
    - (g) Review of upcoming OCCPs within 3-week window.
    - (h) Review of offsite fabrication and delivery schedules.
    - (i) Maintenance of Baseline Schedule.
    - (j) Corrective measures to regain projected schedules.
    - (k) Review 5-Week Schedule and planned progress during succeeding work period.
    - (l) Schedule Update, if required in accordance with Paragraph 3.02.
    - (m) Coordination of projected progress.
    - (n) Maintenance of quality and work standards.
    - (o) Effect of proposed changes on Baseline Schedule and coordination.
    - (p) Any requests for stored materials payment
    - (q) Other business relating to Work.

5. Design-Builder will record minutes and distribute electronic copies within 1 calendar day after meeting to participants and those affected by decisions made.
- E. Daily Coordination Meeting: Upon start of construction, Design-Builder shall hold daily informal meetings with the Owner to discuss planned daily activities by the Design-Build team and Owner staff. Owner may elect to merge this meeting with the Division's regular morning meetings.
- F. OCCP Coordination Meetings:
1. Design-Builder shall schedule and coordinate with Owner one-week prior to implementation of approved OCCP.
  2. Agenda:
    - (a) Review Approved OCCP.
    - (b) Review safety requirements and preparations.
    - (c) Review contingency plans.
    - (d) Confirm resource availability for execution of OCCP.
  3. Design-Builder may request and coordinate additional meetings with Owner as necessary to facilitate completion and approval of draft OCCPs. Owner will make reasonable effort to accommodate Design-Builder but prefers minimum one week notice.
- G. Pre-Installation Conferences:
1. Conduct a Pre-Installation Conference at Project site before each construction activity that requires coordination with other construction, prior to removal/replacement of studs and nuts, and/or application of the high performance coating system in accordance with Section 09960.
  2. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Owner of scheduled meeting dates.
  3. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
    - (a) Contract Documents.
    - (b) Options.
    - (c) Related Change Orders.
    - (d) Purchases.
    - (e) Deliveries.
    - (f) Submittals.
    - (g) Possible conflicts.
    - (h) Compatibility problems.
    - (i) Time schedules.
    - (j) Weather limitations.
    - (k) Manufacturer's written recommendations.
    - (l) Warranty requirements.
    - (m) Compatibility of materials.
    - (n) Acceptability of substrates.
    - (o) Temporary facilities and controls.
    - (p) OCCPs.
    - (q) Space and access limitations.
    - (r) Regulations of authorities having jurisdiction.
    - (s) Testing and inspecting requirements.
    - (t) Required performance results.
    - (u) Protection of construction and personnel.

4. Record significant conference discussions, agreements, and disagreements.
  5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- H. Expedited Submittal Review Meetings: To expedite the submittal process and accelerate the delivery schedule for equipment with long delivery lead times, expedited submittal review meetings may will need to be held for equipment identified by the Design-Builder. Design-Builder shall identify such meetings on Baseline Construction Schedule and coordinate the meetings as needed.
- I. Required Submittal Review Meetings: Work in the following Specifications shall require a workshop prior to submittals in order to streamline the review process.
- (a) Sections 01565 and 02084 – Worker Protection – Asbestos Abatement and Disposal of Regulated Asbestos-Containing Materials.
  - (b) Section 05550 – Studs and Nuts
  - (c) Section 09960 – High Performance Coating Systems
- J. Other Meetings as Required:
1. Maintenance Workshop(s):
    - (a) Purpose: Develop the work orders for new and modified assets with the Owner. Design-Builder shall review Original Equipment Manufacturer (OEM) O&M manual maintenance recommendations with Owner. Maintenance activities (Preventive & Predictive) will be divided between operations and maintenance. The updated round sheets for the site(s) will be reviewed for deficiencies. Design-Builder shall facilitate a discussion of which OEM recommended maintenance activities have value after the warranty period. If necessary, the Design-Builder and Owner will develop additional maintenance activities not recommended by the OEM with a particular focus on predictive maintenance activities such as vibration testing, lubricant testing, and IR testing to support the Owner’s reliability centered maintenance program. Maintenance activity frequency will also be discussed. Lubrication for assets will be discussed with a focus on minimizing new lubricants that will need to be stocked.
    - (b) Scheduling: Meetings shall occur after OEM manuals have submitted and approved.
  2. Sequence of Operations Meeting(s):
    - (a) Schedule: During design, after draft sequence of operations are completed.
    - (b) Purpose: Walk Owner’s operations staff and engineering staff through the proposed sequences of operation to control equipment and processes and solicit comments and refinements.
  3. Facility Data Workshop: NOT USED.
    - (a) Purpose: NOT USED.
    - (b) Scheduling: NOT USED.
  4. O&M Data Meeting
    - (a) 90 days prior to Substantial Completion, a meeting will be held to discuss the steps to prepare the O&M Data for transmittal to the City.
  5. Spare Parts Coordination Meeting
  6. Commissioning meetings as required in Section 01757 - Commissioning.

END OF SECTION



## DAILY FIELD OBSERVATION REPORT

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater  
Treatment Plant

Contractor \_\_\_\_\_

Report Number \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Weather

Clear     Snow  
 Overcast     Foggy  
 Rain     Cold

Warm  
 Hot  
 Temperature Range \_\_\_\_\_

Site Conditions

Clear     Dusty  
 Muddy     \_\_\_\_\_  
 Temperature Range \_\_\_\_\_

Day

Monday     Thursday  
 Tuesday     Friday  
 Wednesday     \_\_\_\_\_

Persons Contacted: \_\_\_\_\_

Work Observed: \_\_\_\_\_

Items Discussed: \_\_\_\_\_

Materials Delivered: \_\_\_\_\_

Requested Revisions or Interpretations: \_\_\_\_\_

Nonconforming Work Reported This Date To Contractor: \_\_\_\_\_

Remarks: \_\_\_\_\_

Attachments \_\_\_\_\_

Signed by: \_\_\_\_\_

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

Distribution:  Owner  
 Contractor  
 Construction Manager  
 Design Professional  
 Consultant \_\_\_\_\_  
 Other \_\_\_\_\_



# PERIODIC FIELD OBSERVATION REPORT

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

Contractor \_\_\_\_\_

Report Number \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Weather

- Clear
- Overcast
- Rain
- Snow
- Foggy
- Cold

Site Conditions

- Warm
- Hot
- Temperature Range \_\_\_\_\_
- Clear
- Muddy
- Dusty
- \_\_\_\_\_

Day

- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- \_\_\_\_\_

Persons Contacted: \_\_\_\_\_

Work Observed: \_\_\_\_\_

Items Discussed: \_\_\_\_\_

Remarks: \_\_\_\_\_

Attachments \_\_\_\_\_

Signed by: \_\_\_\_\_

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

- Distribution:
- Owner
  - Contractor
  - Construction Manager
  - Design Professional
  - Consultant \_\_\_\_\_
  - Other \_\_\_\_\_



# WEEKLY REPORT OF WORKING DAYS

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

Contractor \_\_\_\_\_

Report Number \_\_\_\_\_ Week Ending: \_\_\_\_\_

DATE:	WORKING DAY	REMARKS			
TOTAL THIS WEEK	PREVIOUSLY	TOTAL TO DATE	WORKING DAYS IN CONTRACT	REMAINING OR OVERTIME	

Signed by OWNER'S REPRESENTATIVE \_\_\_\_\_ Date: \_\_\_\_\_

Signed by CONTRACTOR \_\_\_\_\_ Date: \_\_\_\_\_

Distribution:  OWNER  CONTRACTOR  Construction Manager  Design Professional  Consultant  Other

## **SECTION 01322 – PHOTOGRAPHIC AND VIDEO DOCUMENTATION**

### **PART 1 - GENERAL**

#### **1.01 SUMMARY**

- A. This Section outlines the requirements for photographic and video documentation. The Design-Builder is solely responsible for the development of an overall plan to fully document Site conditions and the progress of the Work.
- B. The Design-Builder shall hire a professional photographer to provide the services and deliverables described herein.

#### **1.02 RELATED SECTIONS**

- A. Section 00700 DB – General Conditions.
- B. Section 01019 – Closeout Procedures.
- C. Section 01100 – Summary of Work.
- D. Section 01300 – Submittals.
- E. Section 01320 – Construction Progress Documentation.
- F. Section 01335 – Document Management.
- G. Section 01757 – Commissioning.
- H. Section 01783 – Operation and Maintenance Data.

#### **1.03 DEFINITIONS**

- A. Pre-Construction Video: A video taken to document Site(s) conditions prior to the start of construction.
- B. Pre-Construction Photographs: 360 Degree photographs taken to document Site conditions prior to the start of construction. All Pre-Construction Photographs shall be digital, indexed on an interactive map and shown on a View Location Map.
- C. Construction Progress Photographs: 360 Degree digital photographs taken to document the progress of construction.
- D. Construction Activity Photographs: Digital photographs taken to document specific construction activities.
- E. Post-Construction Photographs: Digital photographs taken after final restoration to document the finished condition of the Site.
- F. Record Photographs: Digital Photographs of all assets effected by the project. Photos taken after Substantial Completion are preferred for assets that are visible then obscured by the project. Assets obscured during the project will have their record photos taken as needed throughout the project.
- G. Affidavit of Authenticity: The photographer's signed and notarized affidavit, attesting to the production of the original photographs, videos and their authenticity.

#### **1.04 SUBMITTALS**

- A. Submit as specified in Section 01300 – Submittals.
- B. Other required Submittals:
  - 1. Photographer's Qualifications: Submit for review and approval the qualification information demonstrating the photographer meets the requirements of paragraph 1.06 of this Section.
  - 2. Phasing Plan: If applicable, submit for review and approval a phasing plan for Pre-Construction Photographs and Videos.

3. Pre-Construction Photographs: Submit for review and approval digital pre-construction photographs with an interactive index map, Photograph Navigation System (see paragraph 2.05 of this Section) and affidavit of authenticity.
4. Pre-Construction Video: Submit for review and approval a pre-construction video with a Video Navigation System (see paragraph 2.05 of this Section) and affidavit of authenticity (see paragraph 1.04 of this Section).
5. Construction Progress Photographs: On a monthly basis, submit digital construction photographs, interactive index map and affidavit of authenticity.
6. Construction Activity Photographs: On a monthly basis, submit digital activity photographs (if different than progress photographs), interactive index map and affidavit of authenticity.
7. Record Photographs: Maintain an active directory of tagged Record Photographs by asset.
8. Post-Construction Photographs/Video: Submit for review and approval digital post-construction photographs or video, interactive index map and affidavit of authenticity.

1.05 **QUALITY ASSURANCE**

- A. The Design-Builder is responsible for the quality assurance and quality control of the Work.
- B. General Quality: Photographs and video shall be clear and of sufficient quality to show relevant detail. They shall not be blurred, taken in shadow or too far away to provide conclusive information. The City may require that the photographs or video be retaken should the quality be insufficient. Costs for such re-takes are the Design-Builder’s sole responsibility and shall be done at no extra cost to the City.
- C. Qualifications of Photographer: The Design-Builder shall engage the services of a professional photographer with a minimum of 3 years of experience in construction photography to document the conditions of the project site. Upon request, samples of the photographer’s prior work and/or references shall be submitted.
- D. Affidavit of Authenticity: The Design-Builder shall provide the photographer’s signed and notarized affidavit, attesting to the production of the original photographs, videos and their authenticity. An affidavit of authenticity shall be provided with each submittal/deliverable.

1.06 **MINIMUM REQUIREMENTS**

- A. The section specifies several different sets of photographic and video documentation requirements. The extent of documentation will depend upon the size and type of the project. The following table summarizes the basic documentation requirements.

Set of Documentation	Mandatory
Pre-Construction Video	✓
Pre-Construction Photographs	✓
Interactive Index Map	✓
Construction Progress/Activity Photographs	✓
Record Photos	✓
Post-Construction Photographs/Video	✓

1.07 **OWNERSHIP**

- A. The photographs and videos shall become the sole property of the City.



## 1.08 SCHEDULES

- A. Schedule of Values: Photographic/Video documentation shall be listed as one line item in the Schedule of Values.
- B. Construction Progress Documentation: Each set of photographs or videos shall be listed in the Preliminary Project Schedule as a discrete activity. See Section 01320 – Construction Progress Documentation.

## 1.09 PHASING

- A. Based on the nature and scope of the Work, the Design-Builder may phase the Pre-Construction Photographs and Video if pre-approved by the City's Representative. If phasing is to be implemented, the following shall apply:
  - 1. The Design-Builder shall submit a Phasing Plan that identifies each area of the Work.
  - 2. For each phase, Pre-Construction Photographs and Videos shall be taken within 21 days of the start of construction activities unless otherwise approved in writing by the City's Representative.
- B. Under no circumstances shall construction begin in any area until the Pre-Construction Photographs and/or Video have been submitted and approved by the City or Designee.

## PART 2 - PRODUCTS

### 2.01 PHOTOGRAPH QUALITY

- A. Photographic images shall be captured in digital format, with a minimum of 10-megapixel resolution and taken without JPG compression.
- B. Each photograph shall include a date/time stamp in the image, showing when the image was taken.

### 2.02 VIDEO QUALITY

- A. All video recordings shall be captured in full 1080-dpi Hi-Definition digital format, without compression or file-reduction whether applied in-camera or after capture during editing.
- B. The original video segments shall be retained in the format captured in camera (such as MP4) without compression or modification that would reduce resolution or quality. The video shall include a date/time stamp in the image, showing when the image was taken. Video shall include verbal description and narrative of what is being captured.

### 2.03 METADATA

- A. Digital files for photographs (Non-Record Photos) and videos shall, at a minimum, contain the following metadata:
  - 1. Project Name.
  - 2. Project Area
  - 3. Date and Time Taken.
  - 4. All other metadata inherently provided by the camera/video equipment.
- B. Record Photos shall be metadata tagged per the City's Record File Tagging.

### 2.04 MEDIA LOG

- A. The Design-Builder shall maintain a media log (photographs and videos) for the project. The log shall include, but is not limited to, the following information for each photograph and/or video:
  - 1. Project Name.
  - 2. Project Number.
  - 3. Contract Number.

4. Name of City and Department.
5. Name of Design-Builder.
6. Name of Design Professional.
7. Photograph file name (the specific format should be tied to the project name).  
Photograph file name shall be unique to each digital file and shall be embedded in the digital image in a manner that is permanent and clearly legible when the file is opened.
8. Include a date designator in file names.
9. Date the photograph was taken.
10. The name of the photographer who took the photograph.

## 2.05 PHOTOGRAPH AND VIDEO NAVIGATION SYSTEM

- A. The Design-Builder shall provide an electronic photographic and video navigation system (navigation system) for searching and viewing recorded imagery.
- B. Interactive Index Map: The navigation system shall indicate the general location of each area photographed or video recorded using icons and other suitable mark-ups on the actual construction drawings in PDF-format. The map shall be filterable by project area, system, and sub-system.
- C. The navigation system shall utilize standard PDF-reader software (such as Adobe Reader, Acrobat, or Bluebeam Vu) or other software that shall be included with the deliverables. Icons shall be individually hyperlinked to the respective photograph, video, affidavit of authenticity and media log file for immediate playback in Windows Media Player, VLC or other players.
- D. The navigation system shall include the following:
  1. Project Name.
  2. Project Number.
  3. Contract Number.
  4. Name of City.
  5. Name of Design-Builder.
  6. Name of Design Professional.
  7. Ranges of dates for which the photographs or videos were taken.
  8. Facility
  9. System
  10. Sub-System
  11. Asset if intelligible
  12. The name of the photographer.
  13. Affidavit of Authenticity.
  14. Media Log.
  15. Photographs.
  16. Videos.
- E. A navigation system shall be provided for each set of photographs and videos taken.

## PART 3 - EXECUTION

### 3.01 PRIOR TO PHOTOGRAPHIC AND VIDEO DOCUMENTATION

- A. Construction Limits: Prior to the Pre-Construction Photographs and Video, the Design-Builder shall flag or mark the construction limits and excavation.
- B. Mark Utilities: Prior to the Pre-Construction Photographs or Video, the Design-Builder shall notify utilities and have them marked so that utility locations are documented.
- C. Coordinate with City to be present during the Pre-Construction Photos; the Design-Builder shall provide the City a minimum of 2 days' notice.

### 3.02 PRE-CONSTRUCTION VIDEO

- A. Scope: Prior to the start of construction, the Design-Builder shall prepare a color video recording with audio of all the areas to be affected by construction. All pre-construction video recordings shall have sufficient detail to reveal the condition (including defects and damage) of all existing features, such as pavement, driveways, culverts, inlets, sidewalks, landscaping, vegetation, creek banks, trees, structures, foundations and other such items along the construction route and in the immediate adjacent areas, which might be affected by the construction operations. In addition, the videographer shall move beyond the construction zone as needed to ensure documentation of features and areas that may not be adequately recorded from the centerline rotations. Videos shall be taken on both sides of the street when construction is in or along a roadway (use this approach along drainage channels and in other similar situations).
- B. Schedule: Taken after utilities and other underground structures/assets have been marked and prior to the placement of materials or equipment on the Site. Videos shall be submitted to the City for review and approval. Under no circumstances shall construction begin until the pre-construction video has been submitted and approved.
- C. The pre-construction video recording shall be done in the presence of a representative of the City.
- D. The Design-Builder shall document all pre-existing site conditions/elements of the Site, the same as listed for the Pre-construction Photographs.
- E. The video documentation shall provide a clear and continuous view of the project showing all visible utilities and features within the limits of construction.
- F. To preclude the possibility of tampering or editing in any manner, all video recordings shall, by electronic means, generate and display continuously and simultaneously on the screen or in the video file metadata properties digital information to include the date and time of recording. The time information shall consist of hours, minutes and seconds, separated by colons (i.e., 10:35:18).
- G. The audio/video recording shall consist of one video and one audio track which shall be recorded simultaneously. All tracks shall consist of the original live recordings and thus shall not be copies of other audio or video recordings.
- H. The audio track shall contain the narrative commentary. Ample descriptive narrative shall be recorded simultaneously during all recordings. Narration shall include clearly audible comments that will deliver station number and/or street address, locations, direction of view and rotation.
- I. Typical video segments should not exceed 10 minutes in length.
- J. Rotations of 360-degrees shall be at all locations being photographed and necessary to see all site conditions.
- K. Panning rate, zoom-in rate and zoom-out rate shall be controlled sufficiently such that playback will provide clarity of the object viewed.
- L. All recording shall be done during times of good visibility. No recording shall be done during periods of precipitation unless authorized by the City.

### 3.03 PRE-CONSTRUCTION PHOTOGRAPHS

- A. Scope: The purpose for pre-construction photo documentation is to record existing conditions, damage and features on or adjacent to the project site. The principal reason for obtaining photographs is so that existing conditions located in the Project Site may be clearly shown and documented in the event of a dispute. Design-Builder is required to notify the City within 2 weeks if the Pre-Construction Video or Photographs differ from the bid documents.
- B. Schedule: Take photographs after underground assets and utilities have been marked, prior to placement of materials or equipment on the Site and prior to the start of construction

activities in an area. Photographs shall be submitted to the City for review and approval. Construction shall not begin until the pre-construction photographs have been submitted and approved.

- C. Pre-construction photographs shall be taken at sufficient intervals to be able to carefully document the pre-construction conditions of the Site before commencement of the Work. Photos shall be 360 views.
- D. In addition, select photographs shall be taken as needed along the construction limits.
- E. Overlapping composition techniques shall be employed to ensure maximum photographic coverage.
- F. Pre-construction photographs shall be taken after underground utilities and assets have been marked.
- G. Pre-construction photographs shall be taken with a representative of the City present unless otherwise authorized by the City.
- H. All Pre-Construction Photographs shall have sufficient detail to reveal the condition (including defects and damage) of all existing features.
- I. Pre-Construction Photos shall have an overlapping 360 view of the project area inside and outside structures/buildings.
  - 1. Views of structures, both inside and adjacent to the ROW/easement in areas where the Contractor/Design-Builder will be working within five (5) feet of said structure.
  - 2. Other views as requested by the City.

### 3.04 CONSTRUCTION PROGRESS PHOTOGRAPHS

- A. Scope: The Design-Builder shall provide construction progress photographs to depict the progress of the work. The Design-Builder shall be responsible for photographs of the Site to show the existing and general progress of the Work. The City will advise as to which views are of interest.
- B. Schedule: Photographs shall be taken at the time of the Pre-construction Photographs, a minimum of once per month throughout the duration of the Project, and at the time of the Post Construction Photographs. Construction Progress Photographs are to be submitted each month with the Design-Builder's Application for Payment.
- C. This set of photographs will be taken as close as possible to the same locations and views of the pre-construction photography.

### 3.05 CONSTRUCTION ACTIVITY PHOTOGRAPHS

- A. Scope: The Design-Builder shall provide photographs taken to document Site conditions and specific construction activities throughout the duration of the Project.
- B. Schedule: Photographs shall be taken two times per month (every two weeks) for the duration of the Project.
- C. Construction Activity Photographs are to be submitted each month with the Design-Builder's Application for Payment.
- D. Photographs shall be taken to depict the work accomplished during the month. These photographs are to include, but are not limited to, the following:
  - 1. Work not yet obscured.
  - 2. All assets that will be obscured by future work shall be photographed after work on the asset is completed and prior to the asset being obscured.
  - 3. When mechanical, electrical, plumbing or building inspections are scheduled.
  - 4. The beginning of installation of major items of equipment.
  - 5. After installation of major items of equipment.
  - 6. Other significant construction activities.
  - 7. As directed by the City.

### 3.06 POST-CONSTRUCTION PHOTOGRAPHS

- A. Scope: The Design-Builder shall provide Post-Construction Photographs of the project area that documents the final restoration and construction improvements. Post-Construction photographs shall show the general condition of the construction zone (recording finished landscape and other restoration, plus construction improvements), and other areas that may have been affected by construction activities.
- B. Schedule
  - 1. Photographs shall be taken after completion of the Substantial Completion punch list when the project is complete, the Site is restored to the satisfaction of the City, and before submission of the Application for Final Payment.
  - 2. Post-construction photographs shall be taken after all items have been address from the Substantial Completion inspection, after cleanup and site restoration, and before application for final payment.
- C. Post-Construction Photographs are to be submitted with the Design-Builder's Application for Final Payment.
- D. The Design-Builder shall coordinate the schedule of the post-construction photographs with the City's Project Manager and shall provide at least 5 days written notice to allow the City's Representative to be present when the photographs are taken.

### 3.07 POST-CONSTRUCTION VIDEO

- A. Scope: The Design-Builder shall prepare a color video recording with audio of all the areas affected by construction. All Post-Construction video recordings shall have sufficient detail to reveal the final, restored condition of all existing assets and in the immediate adjacent areas, which might have been affected by the construction operations. In addition, videographer shall move beyond the construction zone as needed to ensure documentation of features and areas that may not be adequately recorded.
- B. Schedule: The post-construction video shall be taken in conjunction with the post-construction photographs.
- C. Post-construction videos are to be submitted with the Design-Builder's Application for Final Payment.
- D. Unless otherwise authorized by the City, the post-construction video recording shall be done with a representative of the City present.
- E. The Design-Builder shall document all post-construction site conditions/elements of the Site as listed for the post-construction Photographs.
- F. The video documentation shall provide a clear and continuous view of the project alignment showing all visible utilities and features within the limits of construction.
- G. To preclude the possibility of tampering or editing in any manner, all video recordings shall, by electronic means, generate and display continuously and simultaneously on the screen digital information to include the date and time of recording. The time information shall consist of hours, minutes and seconds, separated by colons (i.e., 10:35:18).
- H. The audio video recording shall consist of one video and one audio track which shall be recorded simultaneously. All tracks shall consist of original live recordings and thus shall not be copies of other audio and video recordings.
- I. The audio track shall contain the narrative commentary. Ample descriptive narrative shall be recorded simultaneously during all recordings. Narration shall include clearly audible comments that will deliver station number and/or street address locations, direction of view and rotation.
- J. Typical video segments should not exceed 10 minutes in length.

### 3.08 RECORD PHOTGRAPHS

- A. Scope: Record photographs are a subset of post-construction and construction progress photos that give a view of an effected, modified, updated, or new asset in a project.
- B. The photos are to be post-construction photos wherever practical. Construction Progress Photos shall be utilized when an asset will be obstructed by later portions of the project.
- C. Record Photos shall be taken of the asset from every feasible angle.
- D. All Record Photos shall be tagged per City Record File Tagging Standards.

### 3.09 DELIVERABLES

- A. Delivery of the documentation record shall be made as soon as is practical after the images are recorded. Deliverables include original photographs in JPG format, photographs converted to pdf format, interactive map index and navigation system.
- B. Electronic Storage Devices: Submit the navigation system on a non-returnable USB compatible flash drive. Submittals shall conform to the following:
  - 1. Submit with the monthly invoice two sets of digital photographs and/or videos. Each set shall be contained on a separate electronic storage device.
  - 2. Each set shall be cumulative of all photographs and/or videos taken to date.
  - 3. Affidavit(s) of Authenticity shall be included in a digital format.
- C. Document Management System: Unless otherwise noted in Section 01000 – General Project Requirements, all deliverables shall be provided in an electronic format using the specified document management system and in accordance with paragraph 1.05 of this Section.

END OF SECTION

## **SECTION 01329 – SAFETY PLAN**

### **PART 1 - GENERAL**

#### **1.01 SUMMARY**

A. This Section includes the development and maintenance of a Construction Safety Plan.

#### **1.02 REFERENCES**

- A. National Fire Protection Association (NFPA):
  - 1. 70E - Standard for Electrical Safety in the Workplace.
- B. Occupational Safety and Health Administration (OSHA).
- C. Section 01300 Submittal Procedures.
- D. Section 01354 – Hazardous Materials Procedures
- E. Section 01565 – Worker Protection – Asbestos Abatement
- F. Section 02084 – Disposal of Regulated Asbestos-Containing Material

#### **1.03 CONSTRUCTION SAFETY PLAN**

- A. Detail the Methods and Procedures to comply with NFPA 70E, OSHA, Federal, and Local Health and Safety Laws, Rules and Requirements for the duration of the Contract Times. Include reference to and comply with latest Owner safety policies. Include the following:
  - 1. Identification of the Certified or Licensed Safety Consultant (Safety Officer) who will prepare, initiate, maintain and supervise safety programs, and procedures.
  - 2. Procedures for providing workers with an awareness of safety and health hazards expected to be encountered over the course of construction.
  - 3. Safety equipment appropriate to the safety and health hazards expected to be encountered during construction including asbestos-containing materials, dust, and lead. Include warning devices, barricades, safety equipment in public right-of-way and protected areas, safety equipment used in multi-level structures, air monitors and personal protective equipment (PPE) as required by NFPA 70E.
  - 4. Methods for minimizing employees' exposure to safety and health hazards expected during construction including entrance to underground utility corridors, and confined spaces used in the operation of the treatment plant.
  - 5. Procedures for reporting safety or health hazards.
  - 6. Procedures to follow to correct a recognized safety and health hazard.
  - 7. Procedures for investigation of accidents, injuries, illnesses, and unusual events that have occurred at the construction site.
  - 8. Periodic and scheduled inspections of general work areas and specific workstations.
  - 9. Training for employees and workers at the jobsite regarding safety requirements for the Work.
  - 10. Methods of communication of safe working conditions, work practices and required PPE.
  - 11. Provision of a site-specific emergency action and evacuation plan during normal operations as well as when site access is blocked by trains.
- B. Submit draft Safety Plan to Owner in accordance to Section 01300 Submittal Procedures for review prior to the Pre-Construction Meeting. The Safety Plan shall be a discussion topic on the agenda for

the Pre-Construction Meeting. Following the Pre-Construction Meeting, Design-Builder shall submit final Safety Plan for Owner review within two weeks.

- C. Design-Builder assumes sole responsibility for every aspect of Health and Safety on the jobsite, including the health and safety of subcontractors, suppliers, and other persons on the jobsite:
  - 1. Forward available information and reports to the Safety Consultant Officer who shall make the necessary recommendations concerning worker health and safety at the jobsite.
  - 2. Employ additional health and safety measures specified by the Safety Consultant Officer, as necessary, for workers in accordance with OSHA guidelines.
- D. Timely Transmit to Owner copies of reports and other documents related to accidents or injuries encountered during construction in accordance with Section 01300 Submittal Procedures.
- E. Smoking
  - 1. There is no smoking allowed in buildings or within 50 feet of Digesters and NFPA classified areas and envelopes.
  - 2. No smoking will be allowed in facilities once they are closed in.
  - 3. No smoking will be permitted anywhere on the site following delivery of chemicals.
  - 4. Smoking is only allowed in Owner designated areas.
  - 5. Design-Builder shall provide signage identifying designated smoking areas, and when any changes to the designated areas are made.
  - 6. Design-Builder will be responsible for cleaning up cigarette butts.

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION



## **SECTION 01335 –DOCUMENT MANAGEMENT**

### **PART 1 - GENERAL**

#### **1.01 SUMMARY**

- A. An internet-based coordination and document management systems (DMS), e-builder & B2G, will be used for the Project. This system will be used to manage project documentation among the City (and/or Designee), Design-Builder and Engineer of Record. The Design-Builder shall utilize the document management system for all project related correspondence and documentation.
- B. The DMS will be utilized to create, track and organize project documentation (City's Representative will provide the exceptions), including, but not limited to, the following:
  - 1. Schedules.
  - 2. Applications for Payment.
  - 3. Meeting minutes with action items.
  - 4. Project correspondence.
  - 5. Shop Drawing and Sample(s) Submittals.
  - 6. Transmittals.
  - 7. Change Management:
    - (a) General Contractor Requests for Interpretation.
    - (b) Proposal Requests.
    - (c) Work Change Directives. (Storage only)
    - (d) Change Orders.
  - 8. Reporting:
    - (a) Certified Payroll Report. (B2G)
    - (b) Subcontractors and Major Material Suppliers List. (B2G)
    - (c) Daily Labor Force Reports. (B2G)
    - (d) Daily Inspection Reports.
    - (e) Photographs and Video.
    - (f) Certificate of Achievement of Full Operation.
    - (g) Contractor Affidavit for Final Payment.
    - (h) Subcontractor Affidavit for Final Payment.
    - (i) Punch Lists.
  - 9. Notifications:
    - (a) Correction of Defective Work.
    - (b) Notification of Non-Compliant Work.

#### **1.02 RELATED SECTIONS**

- A. Section 00700 – General Conditions.
- B. Section 01000 – General Project Requirements.
- C. Section 01300 – Submittals.

#### **1.03 COORDINATION MEETING**

- A. Prior to the pre-construction conference, the City will facilitate a meeting with the Design-Builder to review requirements for project coordination, document control and use of the DMS. The meeting should be scheduled to allow the Design-Builder

time to submit the initial project correspondence, other requirements and preliminary schedules in accordance with Section 00700 DB - General Conditions.

- B. At this meeting, the City will present the procedures to be used for document management for the Project.

## PART 2 - PRODUCTS

Not used.

## PART 3 - EXECUTION

Not used.

END OF SECTION

## **SECTION 01354 – HAZARDOUS MATERIAL PROCEDURES**

### **PART 1 - GENERAL**

#### **1.01 SUMMARY**

- A. This Section includes procedures required when encountering hazardous materials, including asbestos-containing materials (ACM) and lead-based paint (LBP), at the Work site.

#### **1.02 REFERENCES**

- A. Occupational Safety and Health Administration (OSHA) United States Code of Federal Regulations (CFR) including, but not limited to:
1. Title 29 - Labor:
    - a. 1910 – Occupational Safety and Health Standards
      - (1) 1910.1025 – Lead
      - (2) 1910.1001 – Asbestos
      - (3) 1910.1200 – Hazard Communication
    - b. 1926 – Safety and Health Regulations for Construction
      - (1) 1926.62 – Lead
      - (2) 1926.1101 – Asbestos
      - (3) 1926.65 – Hazardous Waste Operations and Emergency Response (HAZWOPER)
      - (4) 1926.59 – Hazard Communication
- B. United States Environmental Protection Agency (USEPA) including, but not limited to:
1. Title 40 - Protection of Environment:
    - a. Part 61, Subpart M – National Emission Standard for Asbestos
    - b. Part 261 - Identification and Listing of Hazardous Waste
    - c. Part 763 – Asbestos
- C. Missouri Department of Natural Resources (MDNR):
1. Revised Statutes of Missouri Title XL Additional Executive Departments
    - a. Chapter 643 – Air Conservation
      - (1) 225 – 265 – Asbestos Abatement and Asbestos Removal
- D. Society for Protective Coatings (SSPC):
1. SSPC Guide 6 (SSPC-6) – Guide for Containing Surface Preparation Debris Generated During Paint Removal Operations
  2. SSPC Guide 7 (SSPC-7) – Guide to Disposal of Lead-Contaminated Surface Preparation Debris
- E. Existing KCMO WSD Reports (available upon request from WSD Project Manager):
1. Provided in Appendix A of these Contract Documents

### 1.03 RELATED SECTIONS

- A. Section 00700 DB – General Conditions.
- B. Section 00800 DB – Supplementary Conditions.
- C. Section 01000 – General Project Requirements.
- D. Section 01020 – Record Documents.
- E. Section 01100 – Summary of Work
- F. Section 01140 – Work Restrictions.
- G. Section 01300 – Submittals.
- H. Section 01329 – Safety Plan.
- I. Section 01565 – Worker Protection - Asbestos Abatement.
- J. Section 01566 – Cleanup Operations.
- K. Section 01580 – Project Signs.
- L. Section 02084 – Disposal of Regulated Asbestos-Containing Material

### 1.04 SUBMITTALS

#### A. Hazardous Materials Management Plan (HMMP):

1. The HMMP will be submitted at least 10 days prior to the commencement of the Work and is the Design Builder's comprehensive plan for the management of hazards encountered during the Work, and should include:
  - a. Information about the Design Builder's designated Certified Industrial Hygienist (CIH) per Part 1.05 of this Section and Section 01565.
  - b. Spill management procedures in the event of asbestos, lead or any other hazardous materials release.
  - c. Intended methods of hazardous materials removal, containment, and disposal, including description of engineering controls, personal protective equipment (PPE), and compliance monitoring.
  - d. Schedule and sequence of work for all hazardous materials work.
  - e. A copy of the Site-Specific Hazard Communication Plan in accordance with 29 CFR 1910.1200.
  - f. Copies of licenses, certifications, fit test records, medical surveillance records and notifications to handle and control hazardous materials, as applicable.

#### B. Submit laboratory reports, as applicable.

#### C. Refer to Section 01565 – Worker Protection – Asbestos Abatement for additional requirements.

### 1.05 DEFINITIONS

- A. Asbestos-Containing Material (ACM): Mill tailings or any waste that contains commercial asbestos and is generated by a source subject to the provisions of this subpart. This term includes filters from control devices, friable asbestos waste material, and bags or other similar packaging contaminated with commercial asbestos. As applied to demolition and renovation operations, this term also includes regulated asbestos-containing material waste and materials contaminated with asbestos including disposable equipment and clothing.
- B. Adequately Wet: Sufficiently mix or penetrate with liquid to prevent the release of particulates. If visible emissions are observed coming from ACM, then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wetted.

- C. Competent Person: A trained worker capable of identifying existing and predictable asbestos hazards, perform exposure assessment and monitoring, is qualified to train other workers, and has the authority to take immediate corrective action to eliminate a hazardous exposure.
- D. Friable ACM (FACM): Any material containing more than 1 percent asbestos, that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.
- E. Hazardous materials are those defined by 40 CFR 261 and State-specific codes.
- F. Lead: As defined by 29 CFR 1926.62, lead means metallic lead, all inorganic lead compounds, and organic lead soaps. Excluded from this definition are all other organic lead compounds.
- G. Non-friable ACM (NACM): Any material containing more than 1 percent asbestos, that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
  - 1. Category I NACM: Asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos.
  - 2. Category II NACM: Any material, excluding Category I NACM, containing more than 1 percent asbestos that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
- H. Regulated ACM (RACM): Any material that contains (a) FACM, (b) Category I non-NACM that has become friable, (c) Category I NACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II NACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material over the course of demolition or renovation operations. Category II NACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder in the course of work.

#### 1.06 HAZARDOUS MATERIALS PROCEDURES

- A. When hazardous materials are encountered that were identified by existing reports prepared for WSD:
  - 1. Prepare and initiate implementation of the HMMP, as detailed in Part 1.04 of this Section.
  - 2. Complete notifications to Federal, State and local agencies as required by applicable Laws and Regulations within the times stipulated by such Laws and Regulations.
  - 3. Design Builder will designate a CIH, as required per Part 1.04 of this Section, to issue pertinent instructions and recommendations for protection of workers and other affected persons' health and safety.
  - 4. Identify and contact subcontractors and licensed personnel qualified to undertake storage, removal, transportation, disposal, and other remedial work required by, and in accordance with, applicable laws and regulations.
- B. When hazardous materials are encountered that were not identified by existing reports prepared for WSD:
  - 1. Prepare and initiate implementation of the HMMP as detailed in Part 1.04 of this Section.
  - 2. Notify immediately OWNER, ENGINEER, and other affected parties.
  - 3. Complete notifications to Federal, State and local agencies as required by applicable Laws and Regulations within the times stipulated by such Laws and Regulations.
  - 4. Design-Builder will designate a CIH, as required per Part 1.04 of this Section, to issue pertinent instructions and recommendations for protection of workers and other affected persons' health and safety.
  - 5. Identify and contact subcontractors and licensed personnel qualified to undertake storage, removal, transportation, disposal, and other remedial work required by, and in accordance with, applicable laws and regulations.
- C. Forward to OWNER copies of reports, permits, receipts, and other documentation related to remedial work.

- D. Design Builder will assume responsibility for worker health and safety, including health and safety of subcontractors and their workers.
  - 1. Provide training to workers on recognition, reporting, and safety and health procedures required when hazardous materials are encountered, as relevant to the Work.
- E. File requests for adjustments to Contract Times and Contract Price due to the finding of previously unidentified hazardous materials at the Work site in accordance with Contract Documents.
  - 1. Design Builder and subcontractors will minimize delays by continuing performance of the Work in areas not affected by hazardous materials operations.

#### 1.07 LEAD-BASED PAINT REMOVAL AND DISPOSAL

- A. If encountered, Design Builder and/or its' subcontractors will collect samples of suspected LBP using the methods and frequencies prescribed by CFR Title 29 and Title 40 from the structures identified herein and have samples tested by a certified testing laboratory to determine lead content in samples.
  - 1. Collect a sufficient number of paint samples to provide adequate information regarding lead content in paint on the interior and/or exterior surfaces outlined in the LBP Survey Report for WSD per SSPC specifications.
  - 2. Ensure that samples contain the total thickness of the paint to the substrate, where removed.
  - 3. Ensure that each sample contains a sufficient quantity of paint to facilitate proper and adequate analyses by testing laboratory.
  - 4. Ensure that samples are adequately identified with location from which it was removed.
- B. Laboratory testing will be completed in accordance with applicable testing standards by a National Lead Laboratory Accreditation Program (NLLAP)–certified laboratory.
  - 1. Submit 10 copies of complete laboratory analyses of paint samples.
- C. Prior to beginning the Work associated the removal, containment, and disposal of LBP and associated debris, prepare and submit to the OWNER 10 copies of the HMMP, as required by Part 1.04 of this Section. The HMMP will detail the following:
  - 1. Listing of LBP removal equipment to be used.
  - 2. Outline of procedures to be used to remove LBP.
  - 3. Data and specifications describing chemical stripping materials to be used, if applicable.
  - 4. Data and specifications describing abrasive blast materials and grit size to be used, if applicable.
  - 5. Description of planned LBP removal, hazardous waste debris containment, and hazardous waste disposal methods.
  - 6. Safety plan, consisting of a written plan of action covering operational requirements for safe removal of LBP, safe handling and containment of waste and debris generated by the operation, and safe disposal of hazardous waste and non-hazardous waste materials, complying with the most stringent requirements of the following:
    - a. Equipment and material manufacturer's safety sheets.
    - b. 29 CFR 1910.1025.
    - c. 29 CFR 1926.62.
  - 7. Certifications of personnel to perform work.
  - 8. Selection of an appropriately permitted disposal facility.
- D. Carry out LBP removal, containment, and disposal work in accordance with SSPC guidelines.
- E. Assume responsibility for the proper implementation of the LBP removal method selected. When abrasive blast cleaning is selected to remove LBP, comply with all applicable Federal, State, and local air quality, pollution, and environmental control regulations for blast cleaning. When chemical

stripping is selected to remove the LBP, adhere to the chemical manufacturer's recommendations for the application of the product, the removal of the paint, and the containment of the debris.

- F. LBP removal work shall be performed by a Contractor having prior experience in the removal method selected and shall provide at least 5 references of similar projects completed, 3 of which must have been completed within the past 12 months, documenting their experience.
- G. Utilize a minimum of Class 3 containment and ventilation system, as described in SSPC-6, during LBP removal and containment procedures, as required for the conditions.
- H. Do not leave spent abrasive blast material, chemical stripping material, or LBP debris uncontained on the project site overnight.
- I. Test each container of paint debris, spent blast cleaning abrasive, chemical stripping debris, and other waste material generated by the operation to determine the waste material hazardous waste classification, as required by 40 CFR 261 and the selected disposal facility.
- J. Assume responsibility for the disposal of LBP waste and associated waste generated by the removal of the LBP and the preparation of the surfaces for recoating. Dispose in accordance with applicable Federal, State, local, and selected disposal facility requirements and regulations.
- K. Accurately complete the Uniform Hazardous Waste Manifest included at the end of SSPC-7. Indicate on the Manifest that the OWNER is the hazardous waste generator and obtain the OWNER's USEPA identification number for use in completing the Manifest.

#### 1.08 ASBESTOS MATERIALS

- A. It is the specific intent of these Contract Documents to exclude from the Work any and all new products or materials containing asbestos. No products containing asbestos shall be incorporated in the Work.
- B. Refer to Appendix A, referenced in Part 1.2 of this Section, identifying locations which may have ACM. The information provided as Appendix A also designates the condition of the ACM in each location as either friable or non-friable.
- C. Asbestos abatement shall be executed as outlined in Section 01565 – Worker Protection - Asbestos Abatement of these Contract Documents.

### PART 2 - PRODUCTS

### PART 3 – EXECUTION

#### 3.01 ASBESTOS MATERIALS

- A. Notifications:
  - 1. Design-Builder shall notify OSHA 24 hours prior to performing ACM removal operations.
  - 2. Design-Builder will provide written notification to USEPA Regional Asbestos NESHAP contact at least 20 working days prior to the start of the Work per Section 01565.
  - 3. Design-Builder shall notify MDNR at least 10 working days prior to the start of performing ACM removal operations.
  - 4. Design-Builder shall notify OWNER three (3) working days in advance of commencing asbestos material removal operations.
- B. Work area:
  - 1. Design-Builder will establish a regulated work area, using at a minimum, construction warning tape to establish limits of work area for the asbestos material removal.
  - 2. On-site stockpiling or storage of ACM designated for disposal shall not be allowed.

- C. Safety:
  - 1. Design-Builder's safety plan will be provided as part of the HMMP (Part 1.02) and will detail requirements, as outlined in 29 CFR 1910.1001, 40 CFR 1926.1101 and 40 CFR 1926.65.
- D. Worker qualifications:
  - 1. Refer to Section 01565 of these Contract Documents for qualifications for personnel performing asbestos abatement work.
- E. Legal disposal:
  - 1. Refer to Sections 01565 and 02084 of these Contract Documents for asbestos disposal requirements.

END OF SECTION



## **SECTION 01400 - QUALITY CONTROL**

### **PART 1 - GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Quality assurance - control of installation.
- B. Reference and standards.

#### **1.2 RELATED SECTIONS**

- A. Section 01300 - Submittals: Submission of manufactures' instructions and certificates.

#### **1.3 QUALITY ASSURANCE - CONTROL OF INSTALLATION**

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.

#### **1.4 REFERENCES AND STANDARDS**

- A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date for receiving bids, except where a specific date is established by code.
- C. Obtain copies of standards where required by product specification sections.
- D. Neither the contractual relationships, duties, nor responsibilities of the parties in Contract nor those of the Engineer shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

## PART 2 - PRODUCTS

Not Used.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify that existing site conditions are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Examine and verify specific conditions described in the applicable individual specification sections.

### 3.2 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

END OF SECTION

## **SECTION 01410 - REGULATORY REQUIREMENTS**

### **PART 1 GENERAL**

#### **1.01 SUMMARY**

- A. Section includes: Regulatory authorities and codes. Any costs associated with code compliance with the Kansas City, Missouri Codes Department are the responsibility of the Design-Builder.

#### **1.02 AUTHORITIES HAVING JURISDICTION**

- A. Wastewater Division: City of Kansas City, Missouri.
- B. Facilities Division: City of Kansas City, Missouri.

#### **1.03 APPLICABLE CODES**

##### **A. International Code Council (ICC).**

- 1. Building code:
  - a. International Building Code (IBC), 2012.
    - 1) With City of Kansas City, Missouri amendments.
  - b. International Existing Building Code (IEBC), 2012.
- 2. With City of Kansas City, Missouri amendments Electrical code:
  - a. National Fire Protection Association (NFPA), NFPA 70: National Electrical Code (NEC), 2011.
    - 1) With City of Kansas City, Missouri amendments.
- 3. Energy code:
  - a. International Energy Conservation Code (IECC), 2012.
    - 1) With City of Kansas City, Missouri amendments.
- 4. Fire code:
  - a. International Fire Code (IFC), 2012.
    - 1) With City of Kansas City, Missouri amendments.
- 5. Fuel gas code:
  - a. International Fuel Gas Code (IFGC) – 2012.
    - 1) With City of Kansas City, Missouri amendments.
- 6. Mechanical code:
  - a. International Mechanical Code (IMC), 2012.
    - 1) With City of Kansas City, Missouri amendments.
- 7. Plumbing code:
  - a. Uniform Plumbing Code (UPC2012).
    - 1) With City of Kansas City, Missouri amendments.
- 8. Society for Protective Coatings (SSPC):
  - a. SSPC Guide 6 (SSPC-6) – Guide for Containing Surface Preparation Debris Generated During Paint Removal Operations
  - b. SSPC Guide 7 (SSPC-7) – Guide to Disposal of Lead-Contaminated Surface Preparation Debris

## 1.04 APPLICABLE REGULATIONS AND STANDARDS

A. Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, all applicable Federal, State and local codes and regulations have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies are bound herewith.

1. OSHA United States Code of Federal Regulations (CFR) including, but not limited to:
  - a. Title 29 – Labor:
    - (1) 1910 – Occupational Safety and Health Standards
      - (a) 1910.1001 – Asbestos
      - (b) 1910.1200 – Hazard Communication
      - (c) 1910.132 – General Requirements
      - (d) 1910.134 – Respiratory Protection
      - (e) 1910.145 – Specifications for Accident Prevention Signs and Tags
      - (f) 1910.146 – Permit-Required Confined Spaces
    - (2) 1926 – Safety and Health Regulations for Construction
      - (a) Part 1926.62 – Lead
      - (b) Part 1926.1101 – Asbestos
      - (c) Part 1926.103 – Respiratory Protection
      - (d) Part 1926.65 – Hazardous Waste Operations and Emergency Response (HAZWOPER)
      - (e) Part 1926.95-107 – Personal Protective and Life Saving Equipment
      - (f) 1926.33 – Access to Employee Exposure and Medical Records
      - (g) 1926.59 – Hazard Communication
      - (h) 1926.20-35 – General Safety and Health Provisions
  - b. Title 49 – Transportation:
    - (1) Part 171 – General Information, Regulations, and Definitions
    - (2) Part 172 – Hazardous Materials Table, Special Provisions, hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans
    - (3) Part 171-180 – General Awareness and Training Requirements for Handlers, Loaders and Drivers, and Editorial and Technical Revisions
2. United States Environmental Protection Agency (USEPA) including, but not limited to:
  - a. Title 40 – Protection of Environment:
    - (1) Part 763, Subpart G – Asbestos Worker Protection
    - (2) Part 763, Subpart E – Asbestos Hazard Emergency Response Act (AHERA)
    - (3) Part 763, Subpart E, Appendix C – Asbestos Model Accreditation Plan (MAP)
    - (4) Part 61, Subpart A – National Emission Standards for Hazardous Air Pollutants, General Provisions
    - (5) Part 61, Subpart M – National Emission Standards for Hazardous Air Pollutants, National Emission Standard for Asbestos
    - (6) Part 261 – Identification and Listing of hazardous Waste
3. State Requirements including, but not limited to:
  - a. Missouri State Law – Chapter 643, Air Conservation

- b. Missouri Code of State Regulations (CSR) – 10 CSR 10-6, Air Quality Standards, Definitions, Sampling and Reference Methods and Air Pollution Control Regulations for Entire State of Missouri.

**PART 2 PRODUCTS**

NOT USED

**PART 3 EXECUTION**

NOT USED

## **SECTION 01433 - MANUFACTURERS' FIELD SERVICES**

### **PART 1 – GENERAL**

#### **1.01 SUMMARY**

- A. This Section includes procedural requirements including field services for testing, startup, and training for the City of Kansas City Missouri.
- B. The Design-Builder shall furnish all labor, materials, equipment, and incidentals as necessary to comply with these requirements.

#### **1.02 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract; including General and Supplementary Conditions, all applicable Division 1 Sections, and all applicable Division Sections; apply to this Section.
- B. Related Sections include the following:
  - 1. Divisions 2 through 16 Sections for specific requirements for any field services and startup instructions of applicable products in those Sections.
  - 2. Section 01300 – Submittals.
  - 3. Section 01757 – Commissioning.
  - 4. Section 01914 – Equipment Testing and System Startup.

#### **1.03 DEFINITIONS**

- A. Work-day: One person's labor for 8 hours of work within the City and the Design-Builder's working hours.
- B. Systems Integrator: A contractor specializing in bringing together automation hardware and software subsystems into one system.

#### **1.04 SUBMITTALS**

- A. As required by Section 01300.

#### **1.05 QUALIFICATIONS OF MANUFACTURER'S REPRESENTATIVE**

- A. Authorized representative of the manufacturer, factory trained, and experienced in the technical applications, installation, operation, and maintenance of respective equipment, subsystems, or system, with full authority by the equipment manufacturer to issue the certifications required of the manufacturer. Additional qualifications may be specified in the individual specification section.
- B. Representative subject to acceptance by the City's Representative. No substitute representatives will be allowed unless prior written approval by such has been given.

### **PART 2 - PRODUCTS (Not Used)**

## PART 3 – EXECUTION

### 3.01 FULFILLMENT OF SPECIFIED MINIMUM SERVICES

- A. Furnish manufacturers' services, when required by individual specification section, to meet requirements of this section.
- B. Comply with the requirements in Division 1 Section 01757– Commissioning.
- C. Where time is necessary in excess of that stated in the Specifications for manufacturers' services, or when a minimum time is not specified, time required to perform specified services shall be considered incidental.
- D. Design-Builder shall schedule manufacturers' services to avoid conflict with other onsite testing in this project and other training of division personnel or manufacturers' onsite services.
- E. Before scheduling services, determine the conditions necessary to allow successful testing have been met.
- F. Only those days of service approved by the City's Representative will be credited to fulfill specified minimum services.
- G. Design-Builder shall coordinate manufacturer's field services with the systems integrator, so both are on-site during field services if desired by the City.
- H. When specified in individual specification sections, manufacturer's onsite services shall include:
  - 1. Assistance during product (system, subsystem, or component) installation to include observation, guidance, instruction of Design-Builder's assembly, erection, installation or application procedures.
  - 2. Inspection, checking, and adjustment as required for product (system, subsystem, or component) to function as warranted by manufacturer and necessary to furnish manufacturer's certificate of Proper Installation.
  - 3. Providing, on a daily basis, copies of manufacturers' representative's field notes and data to Owner.
  - 4. Revisiting the Site as required to correct problems and until installation and operation are acceptable to the Engineer of Record or City's Representative.
  - 5. Resolution of assembly or installation problems attributable to or associated with respective manufacturer's products and system.
  - 6. Assistance during functional and performance testing, commissioning, and system startup and evaluation.

### 3.02 MANUFACTURER'S CERTIFICATE OF COMPLIANCE

- A. When so specified, a Manufacturer's Certificate of Compliance form, a copy of which is attached to this section, shall be completed in full, signed by an entity supplying the product, material, or service, and submitted prior to shipment of product or material or execution of the services.
- B. City's Representative may permit use of certain materials or assemblies prior to sampling and testing if accompanied by accepted certification of compliance.
- C. Such form shall certify proposed product, material, or service complies with that specified. Attach supporting reference data, affidavits, and certifications as appropriate.
- D. May reflect recent or previous test results on material or product, if acceptable to the City's Representative.

### 3.03 MANUFACTURER'S CERTIFICATE OF PROPER INSTALLATION

- A. When so specified, a copy of the Manufacturer's Certificate of Proper Installation form shall be completed and signed by equipment manufacturer's representative.
- B. This form shall certify signing party is a duly authorized representative of the manufacturer, is empowered by the manufacturer to inspect, approve, and operate their equipment, and is authorized to make recommendations required to ensure equipment is complete and operational.

### 3.04 TRAINING - NOT USED

### 3.05 SUPPLEMENTS

- A. Supplements listed below, following "End of Section", are part of this Specification.
  - 1. Manufacturer's Certificate of Compliance Form.
  - 2. Manufacturer's Certificate of Proper Installation Form.

END OF SECTION



MANUFACTURER'S CERTIFICATE OF COMPLIANCE FORM

OWNER: \_\_\_\_\_ PROJECT, MATERIAL OR SERVICE SUBMITTED: \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_ PROJECT NO. \_\_\_\_\_

COMMENTS:

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I hereby certify that the above referenced product, material, or service called for by the Contract for the named Project will be furnished in accordance with the applicable requirements. I further certify that the product, material, or service are of the quality specified and conform in all respects with the Contract requirements and are in the quantity shown.

Date of Execution \_\_\_\_\_, 20 \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Manufacturer's Authorized Representative (print) \_\_\_\_\_

Manufacturer's Authorized Representative (Signature) \_\_\_\_\_

MANUFACTURER'S CERTIFICATE OF PROPER INSTALLATION FORM

OWNER			EQPT SERIAL NO.	
EQPT TAG NO.			EQPT/SYSTEM	
PROJECT NO.			SPEC. SECTION	

I hereby certify that the above referenced equipment/system has been:

(Check Applicable)

- Installed in accordance with Manufacturer's recommendations.
- Inspected, checked, and adjusted.
- Serviced with proper initial lubricants.
- Electrical and mechanical connections meet quality and safety standards.
- All applicable safety equipment has been properly installed.
- Functional tests.
- System has been performance tested, and meets or exceeds specified performance requirements.

(When complete system of one manufacturer)

COMMENTS:

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I, the undersigned Manufacturer's Representative, hereby certify that I am (i) a duly authorized representative of the manufacturer, (ii) empowered by the manufacturer to inspect, approve, and operate their equipment, and (iii) authorized to make recommendations required to ensure equipment furnished by the manufacturer is complete and operational, except as may be otherwise indicated herein. I further certify that all information contained herein is true and accurate.

Date of Execution \_\_\_\_\_, 20 \_\_\_\_

Manufacturer: \_\_\_\_\_

Manufacturer's Authorized Representative (print) \_\_\_\_\_

Manufacturer's Authorized Representative (Signature) \_\_\_\_\_

## **SECTION 01500 – TEMPORARY FACILITIES**

### **PART 1 - GENERAL**

#### **1.01 SUMMARY**

- A. This specification covers the requirements for temporary construction facilities required on all projects.

#### **1.02 SPECIFICATION MODIFICATIONS**

- A. It is understood that throughout this section these Specifications may be modified by appropriate items in Section 01000 – General Project Requirements or as otherwise indicated on the Contract Drawings.

#### **1.03 RELATED SECTIONS**

- A. Section 01000 – General Project Requirements.
- B. Section 01100 – Summary of Work.
- C. Section 01300 – Submittals.

#### **1.04 CODES AND STANDARDS**

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.
- B. National Fire Protection Association:
  - 1. NFPA 10 - Standard for Portable Fire Extinguishers.
  - 2. NFPA 70 - National Electric Code.
  - 3. NFPA 241 - Standard for Safeguarding Construction, Alteration and Demolition Operations.

#### **1.05 INFORMATION PROVIDED BY THE CITY**

- A. As provided in the Contract Documents.

#### **1.06 SUBMITTALS**

- A. Submit as specified in Section 01300 – Submittals.

#### **1.07 QUALITY ASSURANCE**

- A. The Design-Builder is responsible for the quality assurance and quality control of the Work.
- B. Regulations – Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to:
  - 1. Building Code requirements.
  - 2. Health and safety regulations.
  - 3. Utility company regulations.
  - 4. Police, Fire Department and rescue squad rules.
- C. Standards:
  - 1. Comply with NFPA 10 and 241 and ANSI A10 Series standards “Temporary Electrical Facilities.”
  - 2. Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with NFPA 70.
- D. Inspections – Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

## PART 2 - PRODUCTS

Not Used.

## PART 3 - EXECUTION

### 3.01 OFFICE

- A. Stationary Office – If required in Section 01000 - General Project Requirements or if Design-Builder deems necessary, Design-Builder shall maintain a suitable stationary office at or near the Site during the performance of the Work.
- B. Assigned Vehicle – For projects of a certain scale and duration, the City will allow the Design-Builder to use an assigned vehicle to serve as a mobile office at the site of the Work. See Section 01000 – General Project Requirements regarding the use of a vehicle in lieu of a stationary office.
- C. The office shall serve as the headquarters of the Design-Builder’s representative authorized to receive Contract Documents, instructions, other communication or articles associated with the Work.
- D. Any communication given to the Design-Builder’s representative or delivered to Design-Builder’s office at the site of the Work shall be deemed to have been delivered to Design-Builder.
- E. Copies of the Contract Documents shall be kept at the office and shall be available for use at all times.

### 3.02 FIELD OFFICE FOR RESIDENT PROJECT REPRESENTATIVE

- A. See Section 01000 – General Project Requirements regarding the requirement of the Design-Builder to provide a field office for the Resident Project Representative.

### 3.03 TEMPORARY UTILITIES

- A. Provide temporary utilities required for construction. Materials may be new or used, must be adequate for the required usage, not create unsafe conditions and not violate applicable codes and standards.
- B. Power:
  - 1. All power for lighting, operations of the Design-Builder’s plant/equipment or for any other use which may be required for proper completion of the Work shall be provided by the Design-Builder.
  - 2. Temporary heat and lighting shall be maintained until the Work is accepted.
- C. Telephone/internet service:
  - 1. Design-Builder shall make all necessary arrangements and pay all installation and monthly charges for telephone/internet service for the temporary office at the site and shall provide all required devices for such service.
- D. Sanitary Facilities:
  - 1. Design-Builder shall furnish temporary sanitary facilities at the site, as provided herein, for the needs of all construction workers and others performing work or furnishing services on the Project.
  - 2. Sanitary facilities shall be of reasonable capacity, properly maintained throughout the construction period and obscured from public view to the greatest practical extent. If toilets of the chemically treated type are used, at least one toilet will be furnished for each 20 persons. Design-Builder shall enforce the use of such sanitary facilities by all personnel at the site.

3. Ventilate the units to control odors and fumes and empty and clean them at least once a week or more often if required by the City. The doors shall be self-closing. Locate the facility behind the construction fence or out of the public view.

3.04 SECURITY

- A. See Section 01000 – General Project Requirements – SECURITY regarding the requirements for security.

3.05 PARKING

- A. See Section 01000 – General Project Requirements – PARKING regarding the requirements for parking.

END OF SECTION

## **SECTION 01565 – WORKER PROTECTION - ASBESTOS ABATEMENT**

### **PART 1 - GENERAL**

#### **1.01 SUMMARY**

- A. The Design-Builder shall provide the following:
  - 1. All labor, materials, and incidentals as necessary to comply with these requirements and to remove all ACM as specified.
  - 2. The equipment and safety provisions required for protecting workers while handling asbestos-containing material (ACM) except for respiratory protection.
  - 3. The disposal of Regulated Asbestos Containing Materials (RACM). Disposal includes packaging of RACM. Disposal may be accomplished either by land filling at an appropriately permitted facility or converting RACM to non-Asbestos waste.
  - 4. Obtaining permits, licenses, inspections, releases and similar documentation, as well as payments, statements and similar requirements known to the OWNER and associated with codes, regulations, and standards. Obtain all necessary permits for disposal of ACM at no additional cost to the OWNER.
- B. The Design-Builder shall comply with specifications herein and adherence to work practices, procedures and requirements set forth in all applicable Federal, State and local regulation. Applicable codes, regulations and standards take precedence, when available.
- C. The Design-Builder shall coordinate all activities with Kansas City Missouri Air Quality Division (Health Department) as necessary.

#### **1.02 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all applicable Division Sections, apply to this section.
- B. Asbestos Abatement Related Documents provided as Appendix A of these Contract Documents:

#### **1.03 SUBMITTALS**

- A. Submit the following to the OWNER for review before starting work.
  - 1. Certified Statement: Submit certified statement to be notarized-signed by an officer of the abatement contracting firm stating which exposure measurements, medical surveillance, and worker training records are being kept in conformance with 29 CFR 1926.
  - 2. Copy of the DESIGN-BUILDER's or subcontractors current Missouri State Registration for Asbestos Contractors issued by the Missouri Department of Natural Resources (MDNR).
  - 3. Copy of State and/or local license for waste transport subcontractor.
  - 4. Name and address of landfill where RACM are to be disposed. DESIGN-BUILDER to include contact person and contact's telephone number.
  - 5. Chain of Custody Form and Form of Waste Manifest proposed for use.
  - 6. Sample of disposal bag and any added labels to be used.
  - 7. Material Safety Data Sheet: Submit Material Safety Data Sheets, or equivalent, in accordance with the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200) for the following:
    - a. Surfactants
    - b. Encapsulants

c. Solvents

8. Surfactant: Submit product data, use instructions and recommendations from manufacturer of surfactant intended for use. Include data substantiating that material complies with requirements.
- B. On a weekly basis, submit copies of all waste manifests and disposal tickets to OWNER.
  - C. Waste Shipment Record: Maintain a waste shipment record as required by the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulation which indicates the waste generator, transporter, and disposal site; and describes the nature, size, type of container, and form of asbestos waste. Submit to OWNER within 30 days of departure from building.
  - D. Submit for the OWNERs records, copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence and records established in conjunction with compliance to standards and regulations bearing upon performance of the Work including:
    1. State and Local Regulations: Submit copies of codes and regulations applicable to the Work.
    2. Submit notices required by Federal, State and local regulations together with proof of timely transmittal to agency requiring the notice.
    3. Submit copies of current valid permits required by state and local regulations.
    4. Submit copies of all Federal, State and local licenses and permits necessary to carry out the Work.

#### 1.04 CODES, REGULATIONS AND STANDARDS

- A. Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, all applicable Federal, State and local codes and regulations have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies are bound herewith.
- B. The DESIGN-BUILDER shall assume full responsibility and liability for the compliance with all applicable Federal, State and local regulations pertaining to work practices, hauling, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The DESIGN-BUILDER is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable Federal, State and local regulations. The DESIGN-BUILDER shall hold the OWNER and ENGINEER harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulation on the part of the DESIGN-BUILDER, the DESIGN-BUILDER's employees, or subcontractors.
- C. Federal Requirements that govern asbestos abatement work, and transportation and disposal of asbestos waste materials include but are not limited to the following:
  1. OSHA United States Code of Federal Regulations (CFR) including, but not limited to:
    - a. Title 29 – Labor:
      - (1) 1910 – Occupational Safety and Health Standards
        - (a) 1910.1001 – Asbestos
        - (b) 1910.132 – General Requirements
        - (c) 1910.134 – Respiratory Protection
        - (d) 1910.145 – Specifications for Accident Prevention Signs and Tags
        - (e) 1910.146 – Permit-Required Confined Spaces
      - (2) 1926 – Safety and Health Regulations for Construction
        - (a) Part 1926.1101 – Asbestos
        - (b) Part 1926.103 – Respiratory Protection
        - (c) Part 1926.95-107 – Personal Protective and Life Saving Equipment



- (d) 1926.33 – Access to Employee Exposure and Medical Records
    - (e) 1926.59 – Hazard Communication
    - (f) 1926.20-35 – General Safety and Health Provisions
  - b. Title 49 – Transportation:
    - (1) Part 171 – General Information, Regulations, and Definitions
    - (2) Part 172 – Hazardous Materials Table, Special Provisions, hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans
    - (3) Part 171-180 – General Awareness and Training Requirements for Handlers, Loaders and Drivers, and Editorial and Technical Revisions
- 2. United States Environmental Protection Agency (USEPA) including, but not limited to:
  - a. Title 40 – Protection of Environment:
    - (1) Part 763, Subpart G – Asbestos Worker Protection
    - (2) Part 763, Subpart E – Asbestos Hazard Emergency Response Act (AHERA)
    - (3) Part 763, Subpart E, Appendix C – Asbestos Model Accreditation Plan (MAP)
    - (4) Part 61, Subpart A – National Emission Standards for Hazardous Air Pollutants, General Provisions
    - (5) Part 61, Subpart M – National Emission Standards for Hazardous Air Pollutants, National Emission Standard for Asbestos
- 3. State Requirements which govern asbestos abatement work or transportation and disposal of asbestos waste materials include, but are not limited to:
  - a. Missouri State Law – Chapter 643, Air Conservation
  - b. Missouri Code of State Regulations (CSR) – 10 CSR 10-6, Air Quality Standards, Definitions, Sampling and Reference Methods and Air Pollution Control Regulations for Entire State of Missouri.
- 4. Abide by all local requirements which govern asbestos abatement work or hauling and disposal of asbestos waste materials.

## 1.05 NOTICES

### A. USEPA

1. Postmark or Deliver Written Notification as required by USEPA NESHAP Asbestos Regulations (40 CFR 61, Subpart M) to the regional Asbestos NESHAP Contact at least 20 working days prior to beginning any work on asbestos containing materials (ACM). Send notification to the following address with a copy to WSD Project Manager:

Air Quality Program, Health Department  
 Suite 3000, 2400 Troost  
 Kansas City, Missouri 64108  
 (816) 983-4301

2. Include the following information in the notification sent to the Air Quality Program:
  - a. Indication whether the notification is the original or revised notification.
  - b. Name, address, and telephone number of Owner or operator.
  - c. Name, address, and telephone number of Design-Builder.
  - d. Type of Operation (demolition or renovation).
  - e. Description of the facility or affected part of the facility being demolished or renovated, including the size (square feet, number of floors), age, present and prior use of the facility.
  - f. Estimate of the approximate amount of RACM to be removed from the facility in terms of linear feet of pipe, and square feet of surface area for other facility components. Also estimate the approximate amount of Category I and Category II non-friable ACM (NACM) in the affected part of the facility that will not be removed before demolition.
  - g. For facilities in which the amount of friable asbestos materials is less than 260 linear feet on pipes and less than 160 square feet or 35 cubic feet if the length and width could not be measured. On other facility components, explain techniques of estimation.
  - h. Location and street address (including building number or name and floor or room number, if appropriate), city, county, and state of the facility being demolished or renovated.
  - i. Scheduled starting and completion dates of asbestos removal work (or any other activity, such as site preparation that would break up, dislodge, or similarly disturb asbestos material) in a demolition or renovation; planned renovation operations involving individual nonscheduled operations shall only include the beginning and ending dates of the report period as described in paragraph (a)(4)(iii) of 40 CFR 61.145.
  - j. Scheduled starting and completion dates of demolition or renovation.
  - k. Nature of planned demolition or renovation and method(s) to be used, including demolition or renovation techniques to be used and description of affected facility components.
  - l. Procedures to be used to comply with the requirements of NESHAP Asbestos Regulations (40 CFR 61 Subpart M).
  - m. Name and location of the waste disposal site where the asbestos containing waste material will be deposited.
  - n. A certification that at least one person trained as required by paragraph (c)(8) of 40 CFR 61.145 will supervise the stripping and removal described by this notification.
3. For emergency renovations described in paragraph (a)(4)(iv) of 40 CFR 61.145, the date and hour that the emergency occurred, a description of the sudden, unexpected event, and an explanation of how the event caused an unsafe condition, would cause equipment damage, or an unreasonable financial burden.
  - a. Description of procedures to be followed in the event that the unexpected RACM is found or Category II NACM becomes crumbled, pulverized, or reduced to powder.
  - b. Name, address, and telephone number of the waste transporter.

#### 1.06 STATE AND LOCAL AGENCIES

- A. Send written notification as required by State and local regulations prior to beginning any work on ACM.

#### 1.07 PERMITS

- A. All ACM is to be transported by an entity maintaining a current "Industrial waste hauler permit" specifically for ACM, as required for transporting of waste ACM to a disposal site.
- B. DESIGN-BUILDER is responsible for obtaining any demolition, building, renovation or other permits, and for paying application fees, if any, where required by State or Local jurisdictions.

#### 1.08 LICENSES

- A. Licenses: Maintain current licenses as required by applicable Federal, State and/or local jurisdictions for the removal, transporting, disposal or other regulated activity relative to the Work in this contract.

#### 1.09 POSTING AND FILING OF REGULATIONS

- A. Post all notices required by applicable federal, state and local regulations. Maintain two (2) copies of applicable federal, state and local regulations and standard. Maintain one copy of each at job site and one copy on file in Design-Builder's office.

#### 1.10 WORKER TRAINING

- A. AHERA Accreditation: All workers are to be accredited Abatement Workers as required by the USEPA MAP Asbestos Abatement Worker Training (40 CFR Part 763, Subpart E, Appendix C).
- B. State and Local License: All workers are to be trained, certified and accredited as required by State of Missouri.
- C. Training - Class I: Complete in accordance with 29 CFR 1926.1101. Provide training for all workers who will perform Class I operations that is the equivalent in curriculum, training method and length to the USEPA MAP asbestos abatement worker training (40 CFR Part 763, Subpart E, Appendix C).
- D. Training - Class II Intact (Non-Friable): Provide training for workers who will be performing Class II work involving only the removal and/or disturbance of one generic category of building material, such as roofing materials, flooring materials, siding materials or cement asbestos panels, which includes at a minimum, the specific work practices and engineering controls which specifically relate to that category. Provide a course that includes "hands-on" training and takes at least 8 hours. Provide training that includes the elements set forth in 29 CFR 1926.1101(k) and the Compliance Directive CPL 2-2.63.
- E. Training - Class II Non-Intact (Friable): Provide training for workers who will be performing Class II work on materials that are friable or will become friable during the work that is the equivalent in curriculum, training method and length to the USEPA MAP asbestos abatement worker training (40 CFR Part 763, Subpart E, Appendix C).
- F. Competent Person: Competent Person for work on removal of ACM must be trained as required by OSHA regulation 29 CFR 1926.1101(k)(9) and 1926.32(f); and as set forth in the Compliance Directive CPL 2-2.63 Appendix D page D-22 to D-23.

## PART 2 - PRODUCTS

### 2.01 PROTECTIVE CLOTHING

- A. General. Provide and require the use of protective clothing, to include coveralls or similar whole-body clothing, head coverings, gloves, and foot coverings for any employee exposed to airborne concentrations of asbestos that exceed the total weight average (TWA) and/or excursion limit prescribed by 29 CFR 1926.1101 or for which a required negative exposure assessment is not produced, and for any employee performing Class I operations which involve the removal of over 25 linear or 10 square feet of thermal system insulation (TSI) or surfacing ACM or presumed ACM.
- B. Coveralls: Provide disposable full-body coveralls and disposable head covers. Design-Builder will require that they be worn by all workers in the Work Area. Provide a sufficient number for all required changes, for all workers in the Work Area.
- C. Additional Protective Clothing: Provide each worker with the protective clothing as required by Federal, State and local regulations, including but is not limited to, hardhats, cold weather gear, gloves, boots and goggles.
- D. Disposable coveralls, head covers, and footwear covers shall be provided by the Design-Builder for the Owner, Engineer and other authorized representatives who may inspect the job site as needed.

### 2.02 MATERIALS

- A. Provide 6-millimeter (mil) thick leak-tight polyethylene disposal bags with three labels showing the following text. **Peel and stick type labels are prohibited.**
  - 1. First Label: Provide in accordance with 29 CFR 1910.1200(f) of OSHA's Hazard Communication standard:  
“DANGER CONTAINS ASBESTOS FIBERS AVOID CREATING DUST CANCER AND LUNG DISEASE HAZARD BREATHING AIRBORNE FIBERS IS HAZARDOUS TO YOUR HEALTH”.
  - 2. Second Label: Provide in accordance with U. S. Department of Transportation regulation on hazardous waste marking. 49 CFR parts 171 and 172. Hazardous Substances  
“RQ-ASBESTOS WASTE CLASS 9 NA2212-PG III”.
  - 3. Third Label: Provide the name of the waste generator (Owner's name), the location from which the waste was generated and the names and addresses of the transporter. This label must be durable, able to repel dirt and moisture (e.g., permanent marker). Label must be placed directly on disposal bag(s) in a legible format.
- B. Polyethylene Sheet: Provide flame resistant polyethylene film that conforms to requirements set forth by the National Fire Protection Association Standard 701, Small Scale Fire Test for Flame-resistant Textiles and Films. Provide largest size possible to minimize seams, 6-mil thick, frosted or black as indicated.
- C. Duct Tape: Provide duct tape in 2-inch or 3-inch widths as indicated, with an adhesive which is formulated to stick firmly to sheet polyethylene.
- D. Spray Cement: Provide spray adhesive in aerosol cans which is specifically formulated to stick firmly to sheet polyethylene.
- E. Fiberboard Drums: Provide heavy duty leak tight fiberboard drums with tight sealing locking metal tops.
- F. Paper board Boxes: Provide heavy duty corrugated paper board boxes coated with plastic or wax to retard deterioration from moisture. Provide in sizes that will easily fit in disposal bags.

## PART 3 – EXECUTION

### 3.01 GENERAL

#### A. Worker Protection

1. Provide worker protection as required by the most stringent OSHA and/or USEPA standards applicable to the Work. The following procedures are the minimum standards to be adhered to regardless of asbestos fiber count in the Work Area.
2. Each time the Work Area is entered remove all personal clothes in designated Changing Room provided by Design-Builder, and put on new disposable coverall, new head cover, and a clean respirator. Proceed through shower room to equipment room and put on work boots.
3. Warning Signs: Near the Work Area a sign complying with requirements of the USEPA NESHAP regulation (40 CFR Part 61) shall be visible in a manner and location that a person can read the following:  
“DANGER ASBESTOS CANCER AND LUNG DISEASE HAZARD AUTHORIZED PERSONNEL ONLY RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA”.

#### B. Transportation and Disposal of RACM

1. All waste is to be transported by a waste transportation contractor or subcontractor with all required licenses from all state and local authorities with jurisdiction.
2. Mix all liquid ACM waste with a blendable material so that it forms a blendable (non-liquid) form and have the concurrence of the landfill operator prior to disposal.
3. Load all adequately wetted RACM in disposal bags or leak-tight containers. All materials are to be contained in one of the following:
  - a. Two 6-mil disposal bags; or
  - b. Two 6-mil disposal bags and a fiberboard drum; or
  - c. Sealed steel drum with no bag.
4. Protect interior of truck or dumpster with critical and primary barriers, as required by authorities having jurisdiction.
5. Carefully load containerized waste in fully enclosed dumpsters, trucks or other appropriate vehicles for transport. Exercise care before and during transport, to ensure that no unauthorized persons have access to the material.
6. Warning Signs: During loading and unloading mark dumpsters, receptacles and vehicles with a sign to comply with requirements of the USEPA NESHAP regulation (40 CFR Part 61), in a visible location that reads:  
“DANGER ASBESTOS DUST HAZARD CANCER AND LUNG DISEASE HAZARD AUTHORIZED PERSONNEL ONLY”
7. Do not store containerized materials outside of the Work Area. Take containers from the Work Area directly to a sealed truck or dumpster.
8. Do not transport disposal bagged materials on open trucks. Label drums with same warning labels as bags. Uncontaminated drums may be reused. Treat used drums that have been contaminated as RACM and dispose of in accordance with this specification.
9. Advise the landfill operator or processor, at least ten days in advance of transport, of the quantity of ACM to be delivered.
10. At disposal site unload containerized waste:
  - a. At a disposal site, sealed plastic bags may be carefully unloaded from the truck. If bags are broken or damaged, return to work site for rebagging. Clean entire truck and contents using procedures set forth under Project Decontamination.

11. Retain receipts from landfill or processor for amount of ACM disposed.
12. At completion of hauling and disposal of each load, submit copy of waste manifest, chain of custody form, and landfill receipt to Owner.

### 3.02 SEQUENCING

- A. Isolate air intakes
  1. Shut down air handling units that draw in fresh air from any area within 30 feet of the Work Area. Seal all air intakes with 6-mil plastic sheeting.
  2. Provide horizontal or vertical extension to relocate the opening of air intakes outside or above the Work Area.
- B. Install critical barriers over all openings into building or equipment within 30 feet of the Work Area. Do not cover building surfaces. Erect temporary screens of reinforced plastic sheeting as required to prevent wind carrying products of work to any entries of the building or other occupied portions of the site.
- C. Do not sand, abrade or grind asbestos containing materials.
- D. Airborne Fiber Levels: Maintain airborne fiber levels as set forth herein.
- E. Use Manual methods which do not render asbestos containing materials “non-intact.” These include the use of spud, spade, flat-blade or slicing tools, such as axes, mattocks, pry bars, spud bars, crow bars, shovels, flat-blade knives, and utility knives, to slice, cut, strip-off, shear-under, or pry up the material.
- F. Remove ACM in an intact state to the extent feasible.
- G. Perform all removal work on non-intact ACM using wet methods, or that which will be rendered non-intact during removal, unless wet methods are not feasible or will create safety hazards.
  1. For removal of ACM in outside conditions, perform all removal work on non-intact asbestos containing materials when outside temperatures are warm enough that the ACM is above the phase change (glass) point. Carryout removal of ACM in a manner that will minimize pulverizing, breaking or abrading of involved materials.
  2. Wet surface with amended water. Use sufficient water to completely wet surface but not cause ponding or running of water. Cut into sections able to fit in disposal boxes as applicable. Use rotary blade to cut. Do not saw or use powered rippers. Lift sections and place in disposal boxes as applicable. Use a high-efficiency particulate air (HEPA) vacuum or wet sweep into sweep shovels to pick up debris as applicable. Bag and dispose of as specified herein.
  3. For insulation, wet insulation with amended water sufficiently to enable it to be removed in a crumbly damp mass. Remove by scraping with hoes. Dispose of insulation as a non-asbestos waste.
- H. When removing with a power cutter:
  1. Continuously mist the blade of the cutting machine during use unless the competent person determines that misting substantially decreases worker safety.
  2. Collect dust and debris resulting from the cutting operation:
    - a. Aggregate Surface: Collect all dust resulting from the cutting operation with a HEPA dust collector or by HEPA vacuuming along cut line.
    - b. Smooth Surface: Collect all dust resulting from the cutting operation with a HEPA dust collector, by HEPA vacuuming along cut line, or by gently sweeping and then carefully and completely wiping up the wetted dust and debris left along the cut line.
  3. Immediately bag dust and debris resulting from the cutting operation or place in covered containers.

- I. Intact ACM shall be removed from Work Area as soon as it is practical, but no later than the end of the work shift.
- J. ACM that is non-intact shall be removed from the Work Area as soon as it is practical, but in any event no later than at the end of the work shift. Non-intact ACM remaining in the Work Area will be kept wet, and placed in an impermeable waste bag, or wrapped in plastic sheeting.

### 3.03 DECONTAMINATION PROCEDURES

- A. Require all workers to adhere to the following personal decontamination procedures at a minimum whenever they leave the Work Area:
  - 1. Type B or C Supplied Air or Powered Air-Purifying Respirators (PAPR):
    - a. When exiting area, remove disposable coveralls, disposable head covers, and disposable footwear covers or boots in the equipment room.
    - b. Still wearing respirators, proceed to showers. Showering is mandatory. Care must be taken to follow reasonable procedures in removing the respirator to avoid asbestos fibers while showering. The following procedure is required at a minimum:
      - (1) Thoroughly wet body including hair and face. If using a PAPR hold blower unit above head to keep canisters dry.
      - (2) With respirator still in place thoroughly wash body, hair, respirator face piece, and all parts of the respirator except the blower unit and battery pack on a PAPR. Pay particular attention to seal between face and respirator and under straps.
      - (3) Take a deep breath, hold it and/or exhale slowly, completely wet hair, face, and respirator. While still holding breath, remove respirator and hold it away from face before starting to breath.
      - (4) Carefully wash face piece of respirator inside and out.
    - c. If using PAPR, shut down in the following sequence:
      - (1) Cap inlets to filter cartridges, and then turn off blower unit (this sequence will help keep debris which has collected on the inlet side of filter from dislodging and contaminating the outside of the unit). Thoroughly wash blower unit and hoses. Carefully wash battery pack with wet rag. Be extremely cautious of getting water in battery pack as this will short out and destroy battery.
      - (2) Shower completely with soap and water.
      - (3) Rinse thoroughly.
      - (4) Rinse shower room walls and floor prior to exit.
      - (5) Proceed from shower to Changing Room and change into street clothes or into new disposable work items.
- B. Remote Shower: The procedures above are to be used if the decontamination facility is used as a remote shower. If a worker cannot gain direct access to the Equipment Room, require that they enter Decontamination Unit and proceed directly through Shower Room to Equipment Room. Decontamination procedure is then completed as required above.

C. Within Work Area:

1. Require that workers NOT eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the Work Area. To eat, chew, drink or smoke, workers shall follow the procedure described above, and then dress in street clothes before entering the non-Work Areas of the building.

END OF SECTION



## **SECTION 01566 – CLEANUP OPERATIONS**

### **PART 1 - GENERAL**

#### **1.01 SUMMARY**

- A. The Design-Builder shall provide all material, labor and equipment necessary for cleanup operations. The Design-Builder shall maintain a neat and clean job site at all times.

#### **1.02 SPECIFICATION MODIFICATIONS**

- A. It is understood that throughout this section these Specifications may be modified by appropriate items in Section 01015 – Specific Project Requirements or as otherwise indicated on the Contract Drawings.

#### **1.03 RELATED SECTIONS**

- A. Section 00700 DB– General Conditions.
- B. Section 01000 – General Project Requirements.
- C. Section 1019 – Closeout Operations.
- D. Section 01100 – Summary of Work.
- E. Section 01300 – Submittals.

#### **1.04 CODES AND STANDARDS**

- A. Not used.

#### **1.05 DEFINITIONS**

- A. Not used.

#### **1.06 INFORMATION PROVIDED BY THE CITY**

- A. As provided in the Contract Documents.

#### **1.07 SUBMITTALS**

- A. The Design-Builder shall submit as specified in Section 01300 – Submittals, if proposing alternate methods and facilities for concrete washout facilities. See paragraph 3.03.E. 3 in this Section.

### **PART 2 - PRODUCTS (NOT USED)**

### **PART 3 - EXECUTION**

#### **3.01 SITE MAINTENANCE**

- A. Cleanup operations shall be conducted in accordance with Section 00700 DB General Conditions, Article 6 – Design-Builder’s Responsibilities.
- B. Adequate cleanup shall be a condition for the processing of the Design-Builder’s monthly progress payment applications.
- C. The Design-Builder shall, at all times, keep the premises from accumulations of excavated materials, waste materials and other debris resulting from the Work. Site maintenance shall include, but is not limited to, the following:
  - 1. Provide adequate trash receptacles on the Site and promptly empty when filled.
  - 2. Conduct periodic cleanup of the Site to avoid hazards, interference with traffic or operations at the Site.

3. Keep construction materials such as pipe, forms and scaffolding neatly stacked.
  4. Conduct immediate cleanup to protect the Work by removing splattered concrete, asphalt, oil, paint, corrosive liquids and cleaning solutions from all surfaces (linear construction) including walls, floors and metal surfaces (vertical construction) before the surfaces are marred.
  5. Volatile wastes shall be properly stored in covered metal containers and removed from the Site daily.
  6. Wastes shall not be buried on the site or disposed of into storm drains, sanitary sewers, streams or waterways. All wastes shall be removed from the site and disposed of in a manner complying with all local permits, ordinances and anti-pollution laws.
  7. Overloading of trucks is prohibited to prevent spillages on all access and haul routes. The Design-Builder shall provide periodic inspection of traffic areas to enforce the requirements of this Section.
  8. The Design-Builder shall prevent all excess material from washing into stream beds, storm water facilities, streets, culverts, etc.
- D. All materials not incorporated into the Work shall be removed and disposed of by the Design-Builder so that the site will be left in equal or better condition than its original state.
- E. The Design-Builder shall remove all mobilized equipment, surplus materials, debris and temporary facilities from the site. The construction site shall be left in its original condition or better condition than before the Work commenced.

### 3.02 DUST CONTROL

- A. The Design-Builder shall take all reasonable measures to prevent unnecessary dust. Surfaces subject to dusting shall be kept moist with water or by the approved application of an approved chemical suppressant. When practical, dusty materials in piles or in transit shall be covered to prevent blowing.
- B. The Design-Builder shall make provisions so that buildings or operating facilities that may be adversely affected by dust shall be adequately protected from dust. Existing or new machinery, motors, instrument panels or similar equipment shall be protected by suitable dust screens. Proper ventilation shall be included with dust screens.

### 3.03 ASBESTOS ABATEMENT WORK

- A. See Sections 01354, 01565, and 02084 for additional requirements.
- B. All waste is to be hauled by a waste hauler with all required licenses from all state and local authority with jurisdiction.
- C. Mix all liquid asbestos containing waste or asbestos contaminated waste with a bladeable material so that it forms a bladeable (non-liquid) form, and have the concurrence of the landfill operator prior to disposal.
- D. Load all adequately wetted RACM in disposal bags or leak-tight containers. All materials are to be contained in one of the following
  1. Two 6 mil disposal bags or
  2. Two 6 mil disposal bags and a fiberboard drum or
  3. Sealed steel drum with no bag
- E. Protect interior of truck or dumpster with Critical and Primary Barriers as required by authorities having jurisdiction.
- F. Carefully load containerized waste in fully enclosed dumpsters, trucks or other appropriate vehicles for transport. Exercise care before and during transport, to insure that no unauthorized persons have access to the material.

- G. Warning Signs: During loading and unloading mark dumpsters, receptacles and vehicles with a sign complying with requirements of the EPA NESHAP regulation (40 CFR Part 61), in a manner and location that a person can read the following legend:

DANGER  
ASBESTOS DUST HAZARD  
CANCER AND LUNG DISEASE HAZARD  
Authorized Personnel Only

- H. Do not store containerized materials outside of the Work Area. Take containers from the Work Area directly to a sealed truck or dumpster.
- I. Do not transport disposal bagged materials on open trucks. Label drums with same warning labels as bags. Uncontaminated drums may be reused. Treat drums that have been contaminated as RACM and dispose of in accordance with this specification.
- J. Advise the landfill operator or processor, at least ten days in advance of transport, of the quantity of material to be delivered.
- K. At disposal site unload containerized waste:
1. At a disposal site, sealed plastic bags may be carefully unloaded from the truck. If bags are broken or damaged, return to work site for re-bagging. Clean entire truck and contents using procedures set forth under Project Decontamination.
- L. Retain receipts from landfill or processor for materials disposed of.
- M. At completion of hauling and disposal of each load submit copy of waste manifest, chain of custody form, and landfill receipt to City Project Manager.

END OF SECTION

SECTION 01580  
PROJECT SIGNS

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes requirements for the erection of a project sign(s) to describe the execution of the Work.
  - 1. The Design-Builder shall furnish all labor, materials, equipment, and incidentals as necessary to comply with these requirements.

1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract; including General and Supplementary Conditions, all applicable Division 1 Sections, and all applicable Division Sections; apply to this Section.

PART 2 - PRODUCTS

2.01 PROJECT SIGN REQUIREMENTS

- A. Design-Builder shall erect one project sign as directed by the Owner's representative in conformance with Kansas City's Standard Water Services project sign detail D-20142 attached to this specification. (See attached)
- B. The Design-Builder shall order one project sign (60-INCH FORCE MAIN REPAIRS) before construction starts and the "Thank You KC!" sign(s) to be installed upon construction completion, under the direction of the Owner's representative. Design-Builder can utilize any printer and shall pick-up project sign(s) at the printer location. Approved sign designs are on file with the following printers:

Almar Printing  
7735 Wornall Road, Kansas City, Missouri 64114  
816-523-4566

Custom Color  
14320 W. 101<sup>st</sup> Terrace, Lenexa, Kansas, 66215  
913-730-3100

Office Max  
Basement, City Hall, Print Center  
414 E. 12<sup>th</sup> Street, Kansas City, Missouri 64106  
816-513-1048

- C. Design-Builder shall obtain approved sign designs from Owner's representative if Design-Builder chooses to use another printer.

- D. The signs shall be picked-up by the Design-Builder in accordance with the Owner's representative's direction on the quantity, size, and language of the signs. Sign costs will be included in Design-Builder's bid price. Design-Builder will obtain correct sign type based on type of construction project.
- E. For this Project, Design-Builder shall obtain sign(s) stating "60-INCH FORCE MAIN REPAIRS". Any other sign language must be approved by the Owner working in conjunction with Water services Communication staff. For all projects, the Design-Builder shall obtain "Thank You KC!" signs. Every sign shall be accompanied by the appropriate lower 1 foot x 6 foot placard.

### PART 3 - EXECUTION

- A. The Design-Builder shall provide all materials and labor to erect the project sign(s)
- B. The project sign(s) shall be erected in a conspicuous place, but shall not interfere with the vision of pedestrian and vehicular traffic such as to create a hazard.
- C. The Design-Builder shall notify any homeowners or businesses adjacent to the location of the sign(s) at least (3) days prior to erecting the sign(s). Water Services Communications staff will approve the language of the courtesy notification.
- D. Project sign(s) shall be erected two (2) days before the start of construction activities. Project sign(s) shall remain in place for the duration of the project and be maintained true, plumb, and in neat condition. No construction activities are allowed until the project sign(s) are erected.
- E. City representative will make the determination of when to remove the project sign(s) and replace with a construction completed "Thank You KC!" sign(s).
- F. Upon completion of the work and when directed by the Owner's representative, the Design-Builder shall remove the "Thank You KC!" sign(s) thirty (30) days after sign(s) were erected. Design-Builder shall ensure when removing all signs that the area is restored.
- G. Design-Builder may reuse applicable project sign(s) that are in good condition to avoid additional costs and waste. Water Services shall assess the condition of the signs and determine the appropriateness of reuse.

END OF SECTION

## SECTION 01581

### PROJECT COMMUNICATIONS

#### PART 1 - GENERAL

##### 1.01 SUMMARY

A. This Section includes some requirements for the communications for this Water Services project prior to and throughout construction.

1. The Design-Builder shall furnish all labor, materials, equipment, and incidentals as necessary to comply with these requirements.

##### 1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract; including General and Supplementary Conditions, all applicable Division 1 Sections, and all applicable Division Sections; apply to this Section.

#### PART 2 - PRODUCTS (Not Used)

#### PART 3 - EXECUTION

- A. The Design-Builder shall provide written communications to affected properties (homeowners, tenants, and businesses) to inform them about the project work that will take place and may potentially disrupt their everyday activities.
- B. Design-Builder shall receive approval from Water Services Communications on any written communications that are likely to be distributed to homes and businesses, such as letters and door hangers. (See attached example letter)
1. Initial letters sent to affected properties should be delivered no more than two (2) weeks prior to the start of construction and no later than (5) days prior to construction as applicable to the project.
  2. Door hangers and other communications throughout construction must be distributed to inform homes and businesses of disruptions.
- C. Costs to produce and deliver written communications to affected home owners and businesses shall be included in Design-Builder's bid price.
- D. Affected homes and businesses will be asked to complete a performance survey regarding Design-Builder's communications and work. The performance survey is not the responsibility of the Design-Builder.

END OF SECTION

## **SECTION 01600 – PRODUCT REQUIREMENTS**

### **PART 1 – GENERAL**

#### **1.01 SUMMARY**

- A. Section includes: Product requirements; product selection; product options and substitutions; quality assurance; shipping, delivery, handling, and storage; and instructions for spare parts, maintenance products, and special tools.

#### **1.02 REFERENCES**

- A. American National Standards Institute (ANSI).
- B. NSF International (NSF):
  - 1. 61 - Drinking Water System Components - Health Effects.
  - 2. 372 - Drinking Water System Components – Lead Content.

#### **1.03 RELATED SECTIONS**

- A. Section 01019 – Closeout Procedures.
- B. Section 01300 – Submittals.
- C. Section 01630 – Substitution Request.
- D. Section 01757 – Commissioning.
- E. Section 01783 – Operation and Maintenance Data.
- F. Section 02312 – Controlled Low Strength Material (CLSM)
- G. Section 02620 – Ductile Iron Pipe for Sewers.
- H. Section 05310 – Steel Decking.
- I. Section 05550 – Studs and Nuts.
- J. Section 09960 – High-Performance Coatings.

#### **1.04 DEFINITIONS**

- A. Products: Inclusive of raw materials, finished goods, equipment, systems, and shop fabrications.
- B. Special tools: Tools that have been specifically made for use on a product for assembly, disassembly, repair, or maintenance.

#### **1.05 SUBMITTALS**

- A. As specified in Section 01300 - Submittals.
- B. Calculations/certifications in accordance with NSF 61 and 372 for materials in contact with drinking water.

#### **1.06 GENERAL REQUIREMENTS**

- A. Comply with Specifications and referenced standards as minimum requirements.
- B. Provide products by same manufacturer when products are of similar nature, unless otherwise specified.
- C. Provide like parts of duplicate units that are interchangeable.
- D. Provide equipment that has not been in service prior to delivery, except as required by tests.
- E. When necessary, modify manufacturer's standard product to conform to specified requirements or requirements indicated on the Drawings.

## 1.07 SUBSTITUTIONS

### A. Formal substitution request procedure:

1. Submit a written formal substitution request to Owner for each proposed substitution within 30 days of effective date of Contract.
2. Owner will return initial opinion and request for additional information within 30 days.
3. Owner will notify Design-Builder in writing of decision to accept or reject the substitution request within 30 days of receiving required information.

### B. Formal substitution request contents:

1. Provide Substitution Request Form as specified in Section 01630 - Substitution Request Form.
2. Manufacturer's literature including:
  - a. Manufacturer's name and address.
  - b. Product name.
  - c. Product description.
  - d. Reference standards.
  - e. Certified performance and test data.
  - f. Operation and maintenance data.
3. Samples, if applicable.
4. Shop drawings, if applicable.
5. Reference projects where the product has been successfully used:
  - a. Name and address of project.
  - b. Year of installation.
  - c. Year placed in operation.
  - d. Name of product installed.
  - e. Point of contact: Name and phone number.
6. Itemized comparison of the proposed substitution with product specified including a list of significant variations:
  - a. Design features.
  - b. Design dimensions.
  - c. Installation requirements.
  - d. Operations and maintenance requirements.
7. Define impacts:
  - a. Impacts to construction schedule.
  - b. Impacts to other contracts.
  - c. Impacts to other work or products.
  - d. Impact to Contract Sum:
    - (1) Do not include costs under separate contracts.
    - (2) Do not include Design-Builder's costs for redesign or revision of Contract Documents.
    - (3) Required license fees or royalties.
  - e. Availability of maintenance services and sources of replacement materials.
8. Design-Builder represents the following:
  - a. Design-Builder bears the burden of proof of the equivalency of the proposed substitution.
  - b. Proposed substitution does not change the design intent and will have equal performance to the specified product.



- c. Proposed substitution is equal or superior to the specified product.
  - d. Design-Builder will provide the warranties or bonds that would be provided on the specified product on the proposed substitution, unless Owner requires a Special Warranty.
  - e. Design-Builder will coordinate installation of accepted substitution into the Work and will be responsible for the costs to make changes as required to the Work.
  - f. Design-Builder waives rights to claim additional costs caused by proposed substitution which may subsequently become apparent.
- C. Substitutions will not be considered for acceptance under the following conditions:
- 1. No formal substitution request is made.
  - 2. The substitution is simply implied or indicated on shop drawings or product data submittals.
  - 3. The formal substitution request is submitted by a subcontractor or supplier.
- D. Substitution requests submitted after the deadline will not be considered unless the following evidence is submitted to the Owner:
- 1. Proof that the specified product is unavailable for reasons beyond the control of the Design-Builder.
    - a. Reasons may include manufacturing discontinued, bankruptcy, labor strikes, or acts of God.
    - b. Design-Builder placed or attempted to place orders for the specified products within 10 days after the effective date of the Agreement.
    - c. The formal substitution request is submitted to Owner within 10 days of the Design-Builder discovering the specified product cannot be obtained.
- E. Owner's decision on a substitution requests will be final and binding.
- 1. Approved substitutions will be incorporated into the Contract Documents with a Change Order.
  - 2. Requests for time extensions and additional costs based on submission of, approval of, or rejection of substitutions will not be allowed.

## PART 2 – PRODUCTS

### 2.01 GENERAL

#### A. Material requirements:

- 1. Materials: Provide corrosion resistance suitable for project conditions, which include potentially high humidity, as specified in Section 09960 – High Performance Coating Systems.
- 2. Dissimilar metals: Separate contacting surfaces with dielectric material.

#### B. Edge grinding:

- 1. Sharp projections of cut or sheared edges of ferrous metals which are not to be welded shall be ground to a radius required to ensure satisfactory paint adherence.

### 2.02 PRODCUTS IN CONTACT WITH DRINKING WATER

#### A. Materials in contact with drinking waters: In accordance with NSF 61 and NSF 372.

- 1. Certification by an independent ANSI accredited third party, including, but not limited to, NSF International, as being lead free.

## 2.03 PRODUCT SELECTION

- A. When products are specified by standard or specification designations of technical societies, organizations, or associations only, provide products that meet or exceed reference standard and Specifications.
- B. When products are specified with names of manufacturers but no model numbers or catalog designations, provide:
  - 1. Products by one of named manufacturers that meet or exceed Specifications.
  - 2. Owner deemed "or equal" evidenced by an approved shop drawing or other written communication.
- C. When products are specified with names of manufacturers and model numbers or catalog designations, provide:
  - 1. Products with model numbers or catalog designations by one of named manufacturers.
  - 2. Owner deemed "or equal" evidenced by an approved shop drawing or other written communication.
- D. When products are specified with names of manufacturers, but with brand or trade names, model numbers, or catalog designations by one manufacturer only, provide:
  - 1. Products specified by brand or trade name, model number, or catalog designation.
  - 2. Products by one of named manufacturers proven, in accordance with requirements for an "or equal", to meet or exceed quality, appearance and performance of specified brand or trade name, model number, or catalog designation.
  - 3. Owner deemed "or equal" evidenced by an approved shop drawing or other written communication.
- E. When Products are specified with only one manufacturer followed by "or Equal," provide:
  - 1. Products meeting or exceeding Specifications by specified manufacturer.
  - 2. Owner deemed "or equal" evidenced by an approved shop drawing or other written communication.

## 2.04 SHIPMENT

- A. Mandatory requirements prior to shipment of equipment:
  - 1. Owner approved shop drawings.
  - 2. Owner approved Manufacturer's Certificate of Source Testing as specified in Section 01757 - Commissioning, when required by specifications.
  - 3. Draft operations and maintenance manuals, as specified in Section 01783 - Operation and Maintenance Data, when required by specifications.
- B. Prepare products for shipment by:
  - 1. Tagging or marking products to agree with delivery schedule or shop drawings.
  - 2. Including complete packing lists and bills of material with each shipment.
  - 3. Packaging products to facilitate handling and protection against damage during transit, handling, and storage.
  - 4. Securely attach special instructions for proper field handling, storage, and installation to each piece of equipment before packaging and shipment.
- C. Transport products by methods that avoid product damage.
- D. Deliver products in undamaged condition in manufacturer's unopened containers or packaging.

## 2.05 SPARE PARTS, MAINTENANCE PRODUCTS, AND SPECIAL TOOLS

- A. Provide spare parts and maintenance products as required by Specifications.

- B. Provide one set of special tools required to install or service the equipment.
- C. Box, tag, and clearly mark items.
- D. Design-Builder is responsible for spare parts, maintenance products, and special tools until acceptance by Owner.
- E. Store spare parts, maintenance products, and special tools in enclosed, weatherproof, and lighted facility during the construction period.
  - 1. Protect parts subject to deterioration, such as ferrous metal items and electrical components with appropriate lubricants, desiccants, or hermetic sealing.
- F. Provide spare parts and special tools inventory list:
  - 1. Equipment tag number.
  - 2. Equipment manufacturer.
  - 3. Subassembly component, if appropriate.
  - 4. Quantity.
  - 5. Storage location.
- G. Store large items individually:
  - 1. Weight: Greater than 50 pounds.
  - 2. Size: Greater than 24 inches wide by 18 inches high by 36 inches long.
  - 3. Clearly labeled:
    - a. Equipment tag number.
    - b. Equipment manufacturer.
    - c. Subassembly component, if appropriate.
- H. Store in spare parts box smaller items:
  - 1. Weight: Less than 50 pounds.
  - 2. Size: Less than 24 inches wide by 18 inches high by 36 inches long.
  - 3. Clearly labeled:
    - a. Equipment tag number.
    - b. Equipment manufacturer.
    - c. Subassembly component, if appropriate.
- I. Spare parts and special tools box:
  - 1. Wooden box:
    - a. Size: 24 inches wide by 18 inches high by 36 inches long.
  - 2. Hinged wooden cover:
    - a. Strap type hinges.
    - b. Locking hasp.
    - c. Spare parts inventory list taped to underside of cover.
  - 3. Coating: As specified in Section 09960 – High Performance Coating Systems.
  - 4. Clearly labeled:
    - a. The words “Spare Parts and/or Special Tools”.
    - b. Equipment tag number.
    - c. Equipment manufacturer.

## PART 3 – EXECUTION

### 3.01 DELIVERY AND HANDLING

- A. Handle equipment in accordance with manufacturer's instructions.
- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage.
- C. Upon delivery, promptly inspect shipments:

1. Verify compliance with Contract Documents, correct quantities, and undamaged condition of products.
2. Acceptance of shipment does not constitute final acceptance of equipment.

### 3.02 STORAGE AND PROTECTION

- A. Immediately store and protect products and materials until installed in Work.
- B. Store products with seals and legible labels intact.
- C. Maintain products within temperature and humidity ranges required or recommended by manufacturer.
- D. Protect painted surfaces against impact, abrasion, discoloration, and other damage.
  1. Repaint damaged painted surfaces.
- E. Exterior storage of fabricated products:
  1. Place on aboveground supports that allow for drainage.
  2. Cover products subject to deterioration with impervious sheet covering.
  3. Provide ventilation to prevent condensation under covering.
- F. Store moisture sensitive products in watertight enclosures.
- G. Furnish covered, weather-protected storage structures providing a clean, dry, noncorrosive environment for mechanical equipment, valves, architectural items, electrical and instrumentation equipment and special equipment to be incorporated into this project.
  1. Storage of equipment shall be in strict accordance with the "instructions for storage" of each equipment supplier and manufacturer including connection of heaters, placing of storage lubricants in equipment, etc.
  2. The Design-Builder shall furnish a copy of the manufacturer's instructions for storage to the Owner prior to storage of all equipment and materials.
  3. Pumps, motors, electrical equipment, and all equipment with antifriction or sleeve bearings shall be stored in weathertight structures maintained at a temperature above 60°F. Electrical equipment, controls, and insulation shall be protected against moisture and water damage. All space heaters furnished in equipment shall be connected and operated continuously.
- H. Unless otherwise instructed by or required by the equipment manufacturer:
  1. Equipment having moving parts, such as gears, bearings, and seals, shall be stored fully lubricated with oil, grease, etc.
  2. Equipment having moving parts shall be rotated a minimum of twice a month to ensure proper lubrication and to avoid metal to metal "welding".
- I. Store loose granular materials on solid surfaces in well-drained area.
  1. Prevent materials mixing with foreign matter.
  2. Provide access for inspection.
- J. Payment will not be made for equipment and materials improperly stored or stored without providing Owner with the manufacturer's instructions for storage.
- K. Provide an Equipment Log including, as a minimum, the equipment identification, date stored, date of inspection/maintenance, date removed from storage, copy of manufacturer's recommended storage guidelines, description of inspection/maintenance activities performed, and signature of party performing inspection/maintenance.

### 3.03 PROTECTION AFTER INSTALLATION

- A. Provide substantial coverings as necessary to protect installed products from damage from traffic and subsequent construction operations.

1. Remove covering when no longer needed.
  2. Replace corroded, damaged, or deteriorated equipment and parts before acceptance of the project.
- B. Update Equipment Log on a monthly basis with description of maintenance activities performed in accordance with the manufacturer's recommendation and industry standards and signature of party performing maintenance.
- C. Upon installation of the equipment, Design-Builder shall, at the discretion of Owner, start the equipment at one-half load for an adequate period of time to ensure that the equipment does not deteriorate from lack of use.
- D. Unless otherwise instructed by or required by the equipment manufacturer, lubricants shall be changed upon completion of installation and as frequently as required thereafter during the period between installation and acceptance. New lubricants shall be put into the equipment by Design-Builder at the time of acceptance.

### 3.04 QUALITY ASSURANCE

- A. Employ entities that meet or exceed specified qualifications to execute the Work.
- B. Verify project conditions are satisfactory before executing subsequent portions of the Work.

### 3.05 COMMISSIONING

- A. As specified in Section 01757 - Commissioning.

### 3.06 CLOSEOUT ACTIVITIES

- A. Owner may request advanced delivery of spare parts, maintenance products, and special tools.
1. Deduct the delivered items from the inventory list and provide transmittal documentation.
- B. Immediately prior to the date of Substantial Completion, arrange to deliver spare parts, maintenance products, and special tools to Owner at a location on site chosen by the Owner.
1. Provide itemized list of spare parts and special tools that matches the identification tag attached to each item.
  2. Owner will review the inventory and the itemized list to confirm it is complete and in good condition prior to signing for acceptance.

END OF SECTION

## SECTION 01610

### GENERAL EQUIPMENT REQUIREMENTS

#### PART 1 - GENERAL

##### 1.01 SUMMARY

A. This Section includes requirements for General Equipment during the execution of the work.

1. The Design-Builder shall furnish all labor, materials, equipment, and incidentals as necessary to comply with these requirements.

##### 1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract; including General and Supplementary Conditions, all applicable Division 1 Sections, and all applicable Division Sections; apply to this Section.

##### 1.03 COORDINATION

A. Design-Builder shall coordinate all details of the equipment with other related parts of the Work, including verification that all structures, piping, fasteners, coating systems, and equipment components are compatible. Design-Builder shall be responsible for all structural and other alterations in the Work required for equipment differing in dimensions or other characteristics from that contemplated in the Contract Drawings or Specifications.

##### 1.04 WORKMANSHIP AND MATERIALS

- A. Design-Builder shall guarantee all equipment against faulty or inadequate design, improper assembly or erection, defective workmanship or materials, and leakage, breakage or other failure. Materials shall be suitable for service conditions.
- B. All equipment shall be designed, fabricated, and assembled in accordance with the best modern engineering and shop practice. Individual parts shall be manufactured to standard sizes and gages so that repair parts of duplicate units shall be interchangeable. Equipment shall not have been in service at any time prior to delivery, except as required by tests.
- C. Except where otherwise specified, structural and miscellaneous fabricated carbon steel, where allowed used in equipment shall conform to AISC standards. All structural members shall be designed for shock or vibratory loads. Unless otherwise specified, all carbon steel, where allowed, which will be submerged, all or in part, during normal operation of the equipment shall be at least 1/4 inch thick.

##### 1.05 LUBRICATION

A. Equipment shall be adequately lubricated by systems which require attention no more frequently than weekly during continuous operation.

- B. Lubricants shall be provided in sufficient quantity for startup and initial equipment evaluation before Owner acceptance. Lubrication systems shall not require attention during startup or shutdown and shall not waste lubricants.
- C. Lubrication facilities shall be convenient and accessible. Unless otherwise specified, the use of synthetic lubricants will not be acceptable.
- D. Each grease lubricated bearing shall be installed in a bearing housing designed to facilitate periodic regreasing of the bearing by means of a manually operated grease gun. Each bearing housing shall be designed to evenly distribute new grease, to properly dispose of old grease, and to prevent overgreasing of the bearing. The use of permanently sealed, grease-lubricated bearings will not be acceptable.

#### 1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Materials shall be delivered to the job site in clearly marked manufacturer's original unopened containers. Bulk shipments must be accompanied by a bill-of-lading which clearly defines the product. Packaged materials must be identified by labels, which are intact and legible.
- B. Design-Builder shall handle and store all materials carefully in accordance with manufacturer's recommendations.
- C. Design-Builder shall continuously protect materials against moisture by storing them in enclosures or raised platforms with protective canvas covers. Plastic wrap should be removed or opened in a way to avoid condensation on the inside.

#### 1.07 TRANSPORTATION AND DELIVERY

- A. Design-Builder shall transport and handle items in accordance with manufacturer's instructions.
- B. Design-Builder shall schedule delivery to reduce long term on-site storage prior to installation and/or operation. Under no circumstances shall equipment be delivered to the site more than two months prior to installation without written authorization from the Owner.
- C. Design-Builder shall coordinate delivery with installation to ensure minimum holding time for items that are hazardous, flammable, easily damaged or sensitive to deterioration.
- D. Design-Builder shall deliver products to the site in manufacturer's original sealed containers or other packing systems complete with instructions for handling, storing, unpacking, protecting and installing.
- E. All items delivered to the site shall be unloaded and placed in a manner which will not hamper the Owner's normal operations or Design-Builder's normal construction operation or those of subcontractors and other contractors and will not interfere with the flow of necessary traffic.
- F. Design-Builder shall provide necessary equipment and personnel to unload all items

delivered to the site.

- G. Promptly inspect shipment to assure that products comply with requirements, quantities are correct and items are undamaged. For items furnished by others (i.e. Owner, other Contractors), perform inspection in the presence of the Project Manager. Notify Project Manager verbally, and in writing, of any problems.
- H. All material and equipment to be incorporated into the work of the Contract must be stored on site or at a bonded facility previously approved in writing by the Owner or Project Manager.

#### 1.08 PREPARATION FOR SHIPMENT

- A. All equipment shall be suitably packaged to facilitate handling and protect against damage during transit and storage. All equipment shall be boxed, crated, or otherwise completely enclosed and protected during shipment, handling, and storage. All equipment shall be protected from exposure to the elements and shall be kept thoroughly dry at all times.
- B. Painted surfaces shall be protected against impact, abrasion, discoloration, and other damage. All painted surfaces which are damaged prior to acceptance of equipment shall be repainted to the satisfaction of the Owner.
- C. Grease and lubricating oil shall be applied to all bearings and similar items.
- D. Each item of equipment shall be tagged or marked as identified in the delivery schedule or on the Shop Drawings. Complete packing lists and bills of material shall be included with each shipment.

#### 1.09 STORAGE AND PROTECTION

- A. Design-Builder shall store and protect products in accordance with the manufacturer's instructions with seals and labels intact and legible. Storage instruction shall be studied by the Design-Builder and reviewed with the Project Manager. Instruction shall be carefully followed and a written record of this kept by the Design-Builder. Arrange storage to permit access for inspection.
- B. All materials shall be stored on solid flat surfaces above a well-drained area without contamination from foreign matter.
- C. All structural and miscellaneous steel shall be stored off the ground or otherwise to prevent accumulations of dirt or grease and in a position to prevent accumulations of standing water and to minimize rusting. Beams shall be stored with the webs vertical.
- D. All mechanical and electrical equipment and instruments subject to corrosive damage by the atmosphere if stored outdoors (even though covered by canvas) shall be stored in a weather tight building to prevent injury. The building may be a temporary structure on the site or elsewhere, but it must be satisfactory to the Project Manager. Building shall be provided with adequate ventilation to prevent condensation. Maintain temperature and humidity within the range required by the manufacturer.



- E. All equipment shall be stored fully lubricated with oil, grease and other lubricants unless otherwise instructed by the manufacturer.
- F. Moving parts shall be rotated a minimum of once weekly to insure proper lubrication and to avoid metal-to-metal "welding". Upon installation of the equipment, the Design-Builder shall start the equipment, at least half load, once weekly for an adequate period of time to ensure that the equipment does not deteriorate from lack of use.
- G. Lubricants shall be changed upon completion of installation and as frequently as required thereafter during the period between installation and acceptance. New lubricants shall be put into the equipment at the time of acceptance.
- H. Prior to acceptance of the equipment, the Design-Builder shall have the manufacturer inspect the equipment and certify that its condition has not been detrimentally affected by the long storage period. Such certifications by the manufacturer shall be deemed to mean that the equipment is judged by the manufacturer to be in a condition equal to that of equipment that has been shipped, installed, tested and accepted in a minimum time period. As such, the manufacturer will guaranty the equipment equally in both instances. If such a certification is not given, the equipment shall be judged to be defective. It shall be removed and replaced at the Design-Builder's expense.

#### 1.10 OFFSITE STORAGE

- A. Offsite storage arrangements may be approved by Owner for certain materials or equipment not incorporated into the Work but included in an Application for Payment. Design-Builder shall present in writing to the Owner the intended offsite storage arrangements, which shall provide adequate and satisfactory security and protection for the materials or equipment. Items so stored shall be insured in the name of the Owner as covered elsewhere in these specifications. Offsite storage facilities shall be accessible to representatives of the Owner on a periodic basis. The decision to allow the Design-Builder to include in an Application for Payment materials or equipment not yet incorporated into the work is solely at the discretion of the Owner and will not be a subject of arbitration, assertion of a claim, or otherwise disputed under the Contract Documents.

#### 1.11 SPECIAL TOOLS AND ACCESSORIES

- A. Equipment requiring periodic repair and adjustment shall be furnished complete with all special tools, instruments, and accessories required for proper maintenance. Equipment requiring special devices for lifting or handling shall be furnished complete with those devices.
- B. Tools shall be furnished in heavy steel tool boxes complete with lock and duplicate keys.

#### 1.12 INSTALLATION OF EQUIPMENT

- A. Special care shall be taken to ensure proper alignment of all equipment with particular reference to pumps and electric drive units. Equipment shall be carefully aligned on its foundation by qualified millwrights after its sole plates have been shimmed to true alignment at the anchor bolts. The anchor bolts shall be set in place and the nuts tightened against the shims. After the foundation alignments have been approved by

Designer of Record, the bed plates or wing feet of the equipment shall be securely bolted in place. The alignment of equipment shall be further checked after securing to the foundations, and after conformation of all alignments, the sole plates shall be finally grouted in place. The Design-Builder shall be responsible for the exact alignment of equipment with associated motors and under no circumstances will "springing" be allowed. Unless otherwise specified, sole or bearing plates for all equipment shall be fabricated from 304 stainless steel.

- B. All wedges, shims, filling pieces, keys, packing, grout, or other materials necessary to properly align, level and secure apparatus in place shall be furnished. All parts intended to be plumb or level must be proven exactly so. Perform all grinding necessary to bring parts to proper bearing after erection.

### 1.13 NOISE LIMITATIONS

- A. All equipment to be furnished under this Contract, unless specified otherwise in the technical specifications, shall be designed to insure that the sound pressure level does not exceed 75 decibels over a frequency range of 37.8 to 9600 cycles per second at a distance of three feet from any portion of the equipment, under any load condition, when tested using standard equipment and methods. Noise levels shall include the noise from the motor. Mufflers or external baffles shall not be acceptable for the purpose of reducing noise. Data on noise levels shall be included with the shop drawing submittal.

### 1.14 SPARE PARTS

- A. Where spare parts are specified in the various sections of the Specifications, furnish all spare parts recommended by the manufacturer or system supplier for one year of service. In addition, furnish all spare parts itemized in each section of the Specifications.
- B. Collect and store all spare parts in an area to be designated by the Project Manager. Furnish the Project Manager with an inventory listing all spare parts, the equipment they are associated with, the name and address of the supplier and the delivered cost of each item. Copies of actual invoices for each item shall be furnished with the inventory to substantiate the delivery cost.
- C. Spare parts shall be packed in cartons, properly labeled with indelible markings with complete descriptive information including manufacturer, part number, part name and equipment for which the part is to be used and shall be properly treated for one year of storage.

## PART 2 - PRODUCTS (NONE THIS SECTION)

## PART 3 - INSTALLATION AND OPERATION

### 3.01 REPRESENTATION

- A. Equipment shall not be installed or operated except by, or with the guidance, of qualified personnel having the knowledge and experience necessary to obtain proper results. When so specified, or when employees or Design-Builder or Subcontractors are not qualified, such personnel shall be field representatives of the manufacturer of the

equipment or materials being installed.

- B. An experienced, competent, and authorized representative of the manufacturer of each item of equipment or materials for which field services are indicated in the Equipment Schedule and as required to perform all manufacturers' field services called for in the Specifications shall visit the site of the Work and inspect, check, adjust if necessary, and approve the equipment installation. Manufacturer's field representatives shall observe, instruct, guide, and direct Design-Builder's erection or installation procedures, or perform an installation check, as required. Each field representative shall revisit the site as often as necessary to attain installation satisfactory to Project Manager.
- C. In each case, the manufacturer's representative will be present when the equipment is placed in operation. The manufacturer's representative shall revisit the jobsite as often as necessary until all trouble is corrected and the equipment installation and operation are satisfactory in the opinion of the Project Manager.
- D. Each manufacturer's representative shall furnish to the Owner, a written report certifying that the equipment has been properly installed and lubricated; is in accurate alignment; is free from any undue stress imposed by connecting piping or anchor bolts; has been operated under full load conditions and that it operated satisfactorily. In addition, the manufacturer's representative shall indicate that all field testing, required by these specifications or the manufacturer for the warranty, have been conducted, and that the test results are satisfactory.
- E. All costs for these services shall be included in the Base Bid. The duration of the visits and the number of round trips shall be as required.

### 3.02 OPERATION

- A. All equipment installed under this Contract shall be placed into successful operation according to the written instructions of the manufacturer or the instructions of the manufacturer's field representative. All required adjustments, tests, operation checks, and other startup activities shall be provided.

### 3.03 OFF-SITE INSPECTION

- A. The Owner reserves the right to inspect materials and products to be supplied under this contract during manufacturing, production, fabricating, or testing at off-site facilities. At the sole discretion of the Owner, inspection services may be performed by Owner's personnel or other authorized inspection organizations.
- B. Upon return of Design-Builder's submittals under Section 01330, the Project Manager shall provide Design-Builder a list of off-site materials, manufacturing, production, fabrication, or testing the Owner may observe and inspect. Design-Builder shall give appropriate written notice to the Owner not less than ten days before the scheduling of the off-site manufacturing processes, fabrication, or testing, designated for inspection. Design-Builder shall provide for the producer, manufacturer, or fabricator to furnish safe access and proper facilities and to cooperate with Owner's inspecting personnel in the performance of their duties.
- C. Owner's off-site inspection of manufacturing, production, fabrication, or testing,

described under Paragraph 1.02, is in addition to any quality control, inspection, or testing of materials in connection with obtaining engineering data required for Owner's review of materials and equipment proposed to be used in the Work under Section 01330.

- D. All costs associated with off-site inspections are to the account of the Owner unless specified otherwise in individual specifications sections.

END OF SECTION

## SECTION 01620

### EQUIPMENT SCHEDULE

#### PART 1 - GENERAL

##### 1.01 SUMMARY

A. This Section includes requirements for the Equipment Schedule during the execution of the work.

1. The Design-Builder shall furnish all labor, materials, equipment, and incidentals as necessary to comply with these requirements.

##### 1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract; including General and Supplementary Conditions, all applicable Division 1 Sections, and all applicable Division Sections; apply to this Section.

##### 1.03 SCOPE

- A. This section consists of a schedule of the items of equipment for which field services, operation and maintenance manuals, and training are required.
- B. Specific requirements for manufacturer's field services are covered in Manufacturers' Field Services, Section 01433.
- C. Specific requirements for operations and maintenance manuals are covered in Submittals, Section 01330 and Operation and Maintenance Data, Section 01783.

##### 1.04 SCHEDULE

- A. Manufacturers' field services with certificates of compliance, operation and maintenance manuals, and training shall be provided for the items of equipment, as indicated in the following schedule. O&M Manuals and training are required for the project as a whole.
- B. All equipment shall have manufacturer's field services, Operations and Maintenance Manuals, and E-O&Ms.
- C. CITY shall determine after the design is complete which equipment shall require training.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION



## SUBSTITUTION REQUEST

Project Number 81000976/1643

Project Title 60-Inch Force Main Repairs at Blue River Wastewater Treatment Plant

To: \_\_\_\_\_

Authorization Number: \_\_\_\_\_

Re: \_\_\_\_\_

From: \_\_\_\_\_

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

Contract For: \_\_\_\_\_

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

Section: \_\_\_\_\_ Page: \_\_\_\_\_ Article/Paragraph: \_\_\_\_\_

Proposed Substitution: \_\_\_\_\_

Manufacturer: \_\_\_\_\_ Address: \_\_\_\_\_ Phone No. \_\_\_\_\_

Trade Name: \_\_\_\_\_ Model No. \_\_\_\_\_

Installer: \_\_\_\_\_ Address: \_\_\_\_\_ Phone No. \_\_\_\_\_

History:  New Product  2-5 years old  5-10 years old  More than 10 years old

Differences between proposed substitution and specified product: \_\_\_\_\_

Point-by-point comparative data attached – REQUIRED

Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance, service, and availability of replacement parts, as applicable, are available.
- Proposed substitution will not affect or delay Progress Schedule, except as stated below.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances, except as stated below.
- Payment will be made for changes to building design, including architectural or engineering design, detailing, licenses, royalties, and construction costs caused by the requested substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be completed in all respects.

Reason for not providing specified item: \_\_\_\_\_

Similar Installation:

Project: \_\_\_\_\_ Design Professional: \_\_\_\_\_

Address: \_\_\_\_\_ Owner: \_\_\_\_\_

Date Installed: \_\_\_\_\_

Proposed substitution affects other parts of Work:  No  Yes; explain \_\_\_\_\_

Savings to Owner for accepting substitution: \_\_\_\_\_

Proposed substitution changes Contract Time:  No  Yes; add/deduct \_\_\_\_\_ days.

Supporting Data Attached:

Product Data  Drawings  Tests  Reports  Samples  \_\_\_\_\_

Attachments: \_\_\_\_\_

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Submitted by: \_\_\_\_\_

Signature: \_\_\_\_\_

Firm: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_ E-Mail: \_\_\_\_\_

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Additional Comments:  Contractor  Subcontractor  Supplier  Manufacturer  DP  \_\_\_\_\_

**DESIGN PROFESSIONAL'S REVIEW AND ACTION**

- Substitution approved – Make submittals in accordance with Specification Section 01300.
- Substitution approved as noted – Make submittals in accordance with Specification Section 01300.
- Substitution rejected – Use specified materials.
- Substitution Request received too late – Use specified materials.

Signed by: \_\_\_\_\_ Date: \_\_\_\_\_

- 
- Distribution:
- Owner
  - Design Professional
  - Contractor
  - Consultant
  - Construction Manager
  - Other

## SECTION 01700

### EXECUTION REQUIREMENTS

#### PART 1 - GENERAL

##### 1.01 SUMMARY

A. This Section includes general procedural requirements governing the execution of the Work.

1. The Design-Builder shall furnish all labor, materials, equipment, and incidentals as necessary to comply with these requirements including but not limited to the following and as required herein:

- a. Construction layout.
- b. Lines and Grade
- c. Asbestos Abatement.
- d. General installation of products.
- e. Progress cleaning.
- f. Starting and adjusting.
- g. Protection of installed construction.
- h. Correction of the Work.

##### 1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract; including General and Supplementary Conditions, all applicable Division 1 Sections, and all applicable Division Sections; apply to this Section.

##### 1.03 SUBMITTALS

A. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

#### PART 2 - PRODUCTS (Not Used)

#### PART 3 - EXECUTION

##### 3.01 EXAMINATION

A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

1. Before construction, confirm size and quantity of studs and nuts required to complete the Work.

2. Before construction, confirm linear footage of piping and other asbestos-coated infrastructure to be abated as part of the Work.



- B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning site work, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
  - 1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
    - a. Description of the Work.
    - b. List of detrimental conditions, including substrates.
    - c. List of unacceptable installation tolerances.
    - d. Recommended corrections.
  - 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  - 3. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

### 3.02 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
  - 1. Notify Project Manager not less than two days in advance of proposed utility interruptions.
  - 2. Do not proceed with utility interruptions without Project Manager's written permission.
- C. Field Measurements: Take field measurements as required to fit the Work properly. Re-check measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- D. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- E. Remove steel decking overhead of the 60-inch pipes to allow access to complete the Work. Steel decking will be reinstalled upon completion of the Work.
- F. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Project Manager. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

### 3.03 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown in Contract Documents. If discrepancies are discovered, notify Project Manager promptly.

### 3.04 ASBESTOS ABATEMENT

- A. Asbestos abatement activities will be executed as specified in Sections 01354, 01565, and 02084.

### 3.05 LINES AND GRADES

- A. All Work shall be done to the lines, grades, and elevations shown on the drawings.
- B. Basic horizontal and vertical control points will be established or designated by Water Services Department. These points shall be used as datum for the Work. All additional survey, layout, and measurement Work shall be performed by Design-Builder as a part of the Work.
- C. Design-Builder shall provide an experienced instrument person, competent assistants, and such instruments, tools, stakes, and other materials required to complete the survey, layout and measurement Work. In addition, Design-Builder shall furnish, without charge, competent men from his force and such tools, stakes, and other materials as Water Services Department may require in establishing or designating control points, in establishing construction easement boundaries, or in checking survey, layout, and measurement Work performed by Design-Builder.
- D. Design-Builder shall keep Water Services Department informed, as reasonable time in advance as possible, of the times and places at which he wishes to do Work, so that horizontal and vertical control points may be established and any checking deemed necessary by Water Services Department may be done with minimum inconvenience to Water Services Department and minimum delay to Design-Builder.
- E. Design-Builder shall remove and reconstruct Work which is improperly located.

### 3.06 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  - 1. Make vertical work plumb and make horizontal work level.
  - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

- F. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
  - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Project Manager.
- G. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### 3.07 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
  - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  - 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
  - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
  - 1. Remove liquid spills promptly.
  - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- F. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- G. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- H. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- I. Limiting Exposures: Supervise construction operations to assure that no part of the construction; completed or in progress; is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### 3.08 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation.
- B. Test each piece of equipment to verify proper operation.

### 3.09 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

### 3.010 FENCES

- A. All existing fences affected by the Work shall be maintained by Design-Builder until completion of the Work. Fences which interfere with construction operations shall not be relocated or dismantled until written permission is obtained from the owner of the fence, and the period the fence may be left relocated or be dismantled has been agreed upon. Where fences must be maintained across the construction easement, adequate gates shall be installed. Gates shall be kept closed and locked at all times when not in use.
- B. On completion of the Work across any tract of land, Design-Builder shall restore all fences to their original or to a better condition and to their original location.

### 3.011 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
  - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, and touching up with matching materials.
- B. Restore permanent facilities used during construction to their specified condition.

END OF SECTION

## SECTION 01731

### CUTTING AND PATCHING

#### PART 1 - GENERAL

##### 1.01 SUMMARY

A. This Section includes requirements for cutting and patching during the execution of the work.

1. The Design-Builder shall furnish all labor, materials, equipment, and incidentals as necessary to comply with these requirements.
2. This Section will be used to guide the cutting and replacement of the existing studs and nuts with new.

##### 1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract; including General and Supplementary Conditions, all applicable Division 1 Sections, and all applicable Division Sections; apply to this Section.

##### 1.03 DEFINITIONS

- A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

##### 1.04 SUBMITTALS

- A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
  2. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
  3. Products: List products to be used and firms or entities that will perform the Work.
  4. Dates: Indicate when cutting and patching will be performed.
  5. Utilities: List utilities that cutting and patching procedures will disturb or affect. Cutting and patching procedures will be sequenced as to keep utilities in service.
  6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing

integration of reinforcement with original structure that is sealed by a registered engineer in the state Missouri.

7. Owner's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

## 1.05 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch any operating elements of 60-inch force mains and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety to pump station components.
- C. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

## PART 2 - PRODUCTS

### 2.01 MATERIALS

- A. General: Comply with requirements specified in other Sections of these Specifications.
- B. Existing Materials: Use materials identical to existing materials unless existing materials will corrode due to hydrogen sulfide exposure. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
- C. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials and will not corrode when exposed to documented high humidity levels within the utility corridor.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
- B. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

### 3.02 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut, as needed.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
  - 1. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
  - 2. Existing Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to avoid interruption of services to other plant areas.

### 3.03 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  - 3. Concrete: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  - 4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture, hydrogen sulfide, or other foreign matter after cutting.
  - 5. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
2. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

END OF SECTION



## SECTION 01732

### SELECTIVE DEMOLITION

#### PART 1 - GENERAL

##### 1.01 SUMMARY

A. This Section includes the following:

1. Demolition and removal of selected portions of site elements.
2. Repair procedures for selective demolition operations.
3. The Design-Builder shall furnish all labor, materials, equipment, and incidentals as necessary to comply with these requirements.

##### 1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract; including General and Supplementary Conditions, all applicable Division 1 Sections, and all applicable Division Sections; apply to this Section.

1. Related Sections include the following:

- a. Division 1 Section "Summary of Work" for use of the premises and any phasing requirements.
- b. Division 1 Section "Cutting and Patching" for cutting and patching procedures for selective demolition operations
- c. Division 5 Section "Steel Decking" for removal and reinstallation of existing steel decking.

##### 1.03 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Salvage: Detach items from existing construction and deliver them to Owner.

C. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

##### 1.04 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Design-Builder's property and shall be removed from Project site.

## 1.05 SUBMITTALS

- A. Schedule of Selective Demolition Activities: Indicate the following:
  - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
- B. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged.
- C. Pre-demolition Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by selective demolition operations. Submit before Work begins.

## 1.06 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Standards: Comply with ANSI A10.6 and NFPA 241.
- D. Pre-demolition Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."
  - 1. Inspect and discuss condition of construction to be selectively demolished.
  - 2. Review structural load limitations of existing structure.
  - 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.

## 1.07 PROJECT CONDITIONS

- A. Owner's operations will continue immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
  - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from authorities having jurisdiction.
- B. Owner assumes no responsibility for condition of areas to be selectively demolished.
  - 1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

2. If additional materials, other than those previously identified as provided in Appendix A, suspected of containing hazardous materials are encountered, do not disturb; immediately notify Owner.
- C. Storage or sale of removed items or materials on-site will not be permitted.
- D. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
- E. Maintain fire-protection facilities in service during selective demolition operations.

## PART 2 - PRODUCTS

### 2.03 REPAIR MATERIALS

- A. Use repair materials identical to existing materials and as specified within these Contract Documents.
- B. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible. A substitution request must be provided to the Owner as specified in Section 01630.
- C. Use materials whose installed performance equal or surpasses that of existing materials.

## PART 3 - EXECUTION

### 3.03 EXAMINATION

- A. Verify that utilities have been disconnected and capped. 60-Inch Force mains are to remain online throughout the duration of the Work.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Project Manager.
- E. Engage a professional engineer to survey condition of structure to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.
- F. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

### 3.04 UTILITY SERVICES

- A. Existing Utilities: Maintain services indicated to remain and protect them against damage during selective demolition operations.
- B. Do not interrupt existing utilities serving occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to authorities having jurisdiction.
- C. Utility Requirements: Locate, identify, disconnect, and seal or cap off indicated utilities serving areas to be selectively demolished.
  - 1. If utility services are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary utilities that bypass area of selective demolition and that maintain continuity of service to other parts of building.
  - 2. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

### 3.05 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- B. Temporary Shoring: Provide and maintain shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of construction to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
- C. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- D. Cleaning: Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

### 3.06 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated.
- B. Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.
- C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition.

### 3.07 PATCHING AND REPAIRS

- A. General: Promptly repair damage to adjacent construction caused by selective demolition operations.
- B. Patching: Comply with Division 1 Section "Cutting and Patching."
- C. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.

### 3.08 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

### 3.09 SALVAGE OF MATERIALS AND EQUIPMENT

- A. Existing materials and equipment removed, and not reused, as a part of the Work shall become Design-Builder's property, except that the City shall have first right of refusal of any removed items from the site. Any item not desired to be kept by the City shall be removed from the site.
- B. Design-Builder shall carefully remove, in a manner to prevent damage, all materials and equipment specified or indicated to be salvaged and reused or to remain the property of the Owner. He shall store and protect salvaged items specified or indicated to be reused in the work.
- C. Salvaged items not to be reused in the work, but to remain Owner's property, shall be delivered by Design-Builder in good condition to Owner.
- D. Any items damaged in removal, storage, or handling through carelessness or improper procedures shall be replaced by the Design-Builder in kind or with new items.
- E. Design-Builder may at his option furnish and install new items in lieu of those specified or indicated to be salvaged and reused, in which case such removed items will become Design-Builder's property.
- F. Existing materials and equipment removed by Design-Builder shall not be reused in the work except where so specified or indicated.
- G. Steel decking and vacated office space will be removed prior to the start of the Work by Design-Builder. The steel decking will be staged on-site for reinstallation before completion of the project. The vacated office space materials will be disposed or salvaged off-site.

### 3.10 SELECTIVE DEMOLITION SCHEDULE

- A. Existing Items to be removed by Design-Builder and disposed or salvaged off-site:
  - 1. Existing studs and nuts, and asbestos-containing pipe coating system along 60-Inch force mains as identified in the Contract Documents, Appendix A, and during the pre-construction conference.
  - 2. Steel decking and vacated office space will be removed prior to the start of the Work by Design-Builder. The steel decking will be staged on-site for reinstallation before completion of the project. The vacated office space materials will be disposed or salvaged off-site.
- B. Removed items may be temporarily stored at site only at locations designated by Owner but not greater than 10 days in duration. Design-Builder shall promptly remove such property from the site for disposal or salvage by Design-Builder.
- C. The Design-Builder shall be solely responsible for determining the extent and cost of all removal and salvage operations. Any delay or extra expense to the Design-Builder due to encountering structures, construction, piping, or equipment not indicated or in locations different from those indicated on the drawings shall not constitute a claim for extra work, additional payment, or damages.

END OF SECTION

**SECTION 01757 - COMMISSIONING**

**PART 1 – GENERAL**

**1.01 SUMMARY**

A. This Section includes the requirements for each Commissioning phase of, the Project equipment/system and/or facility.

**1.02 DEFINITIONS**

- A. Commissioning - The process of planning, testing, and process start-up of the installation for compliance with contract requirements and demonstrating, through documented verification, that the project has successfully met the Contractual requirements.
- B. Commissioning Phases - The work activities of facility commissioning are grouped into the phases defined in the table below.

<u>Commissioning</u>		
<u>Planning Phase</u>	<u>Testing Phase</u>	<u>Process Start-Up Phase</u>
Owner Training Plan and Schedule	Source Testing	Process Start-up
Commissioning Schedule	Installation Testing	Process Operational Period
Subsystem Testing Plan	Functional Testing	Instrumentation and Controls Fine-Tuning
	Closeout Documentation	

- C. Component - A basic building block of equipment, subsystems, and systems that requires installation or functional testing but does not have electrical connection or internal electronics. (Examples: filter effluent piping and manual isolation valves).
- D. Device - A basic building block of equipment, subsystems, and systems that requires installation or functional testing and does have electrical connections or internal electronics. (Examples: filter level transmitter or water pump pressure transmitter).
- E. Equipment - An assembly of component(s) and devices(s) that requires installation or functional testing. (Examples: Pump, motor, VFD, Ozone Generator, UV Disinfection System, etc.).
- F. Facility - A grouping of process areas, systems, subsystems, equipment, components, and devices (Examples: treatment plant, pump station, etc.).
- G. Functional Testing - Testing performed on a completed subsystem to demonstrate that equipment/system meets manufacturers’ calibration and adjustment requirements and other requirements as specified. Functional testing includes operating equipment/system manually in local, manually in remote (or remote manual), and automatically in remote (in remote auto).
- H. Installation Testing - Testing to demonstrate that subsystem component (piping, power, networks, devices, etc.) is ready and meets the project requirements in advance of functional testing. Installation testing also includes manufacturers’ certification of installation and other requirements as specified to prepare equipment/system for Functional Testing. Also referred to as Field Acceptance Testing.

- I. Instrumentation and Controls Fine-Tuning - Improving the performance of the Instrumentation Process Control system by operating for an extended time period.
- J. Manufacturer's Certificate of Source Testing - When applicable, the form is used during Source Testing for the manufacturer to confirm that the applicable source tests have been performed and results conform to the Contract Documents. The form is provided at the end of this Section.
- K. Manufacturer's Certificate of Installation and Functionality Compliance - The form is used during Installation Testing and Functional Testing. It is submitted at the end of Functional Testing to confirm that the equipment/system is installed in conformance with the Contract Documents and that it meets the Functional Testing requirements defined in the Contract Documents. The form is provided at the end of this Section.
- L. Process Area - A grouping of systems, subsystems, equipment, components, and devices that divide a facility into functional areas. (Examples: Filter Process Area or Chemical Area).
- M. Process Operational Period - A period of time after completion of the process start-up set aside for final Operational Testing to verify facility performance meets the Contract Document requirements. This period may specifically limit other construction activities.
- N. Process Start-up Phase - Operating the facility to verify performance meets the Contract Document requirements.
- O. Process Start-Up - Activities conducted after the testing and training phase that are necessary to place systems or process areas into operational service.
- P. Product - A system, subsystem or component.
- Q. Subsystem - A building block of systems made up from a grouping of components, devices, and equipment that perform a definable function. (Examples: Filter No. 1 Backwash Subsystem, Sedimentation Basin No. 1 Hoseless Sludge Removal Subsystem).
- R. System - A grouping of subsystems, equipment, components, and devices that perform a definable function. (Examples: Filter No. 1, Sedimentation Basin).

### 1.03 COMMISSIONING MANAGER

- A. Designate and provide a COMMISSIONING MANAGER for this project.
- B. Submit summary of the COMMISSIONING MANAGER's qualifications within 30 days of NTP:
  - 1. Include description of previous experience as a COMMISSIONING MANAGER on similar projects for the designated COMMISSIONING MANAGER with a list of references including phone numbers for review and Owner approval.
- C. COMMISSIONING MANAGER responsibilities include the following:
  - 1. Lead efforts relating to Commissioning.
  - 2. Be thoroughly familiar with commissioning requirements in the Contract Documents.
  - 3. Be regularly engaged and experienced in all aspects of commissioning.
  - 4. Provide technical instruction for commissioning.
  - 5. Provide primary interface with Owner for efforts relating to Commissioning of Project facilities.
  - 6. Coordinate training efforts.
- D. COMMISSIONING MANAGER on-site:
  - 1. Testing and Training Phase: Full-time.
  - 2. Process Start-up Phase: Full-time.
- E. Designate and provide COMMISSIONING MANAGER assistants, as needed.

### 1.04 SERVICES OF MANUFACTURER'S REPRESENTATIVES

- A. Qualification of manufacturer's representative as specified in the Contract Documents technical sections include the following:



1. Authorized representative of the manufacturer, factory trained and experienced in the technical applications, installation, operation, and maintenance of respective equipment/system with full authority by the equipment/system manufacturer to issue the certifications required of the manufacturer.
  2. Competent, experienced technical representative of equipment/system manufacturer for assembly, installation, testing guidance, and training.
  3. Additional qualifications may be specified in the individual sections.
  4. Submit qualifications of the manufacturer's representative no later than 30 days in advance of required observations.
  5. Representative subject to approval by Owner.
  6. No substitute representatives will be allowed until written approval by Owner has been obtained.
- B. Completion of manufacturer on-site services: Owner approval required.
- C. Manufacturer is responsible for determining the time required to perform the specified services.
1. Minimum times specified in the Contract Documents are estimates.
  2. No additional costs associated with performing the required services will be approved.
  3. Manufacturer required to schedule services in accordance with the Design-Builder's project schedule up to and including making multiple trips to project site when there are separate milestones associated with installation of each occurrence of manufacturer's equipment.
- D. Manufacturer's on-site services as specified in the Contract Documents include the following:
1. Assistance during Commissioning Phase and Process Start-Up Phase.
  2. Provide daily copies of manufacturer's representatives field notes and data to Owner.
  3. Services as specified in Section 01433 - Manufacturer's Field Services.
  4. Other requirements as specified in the Contract Documents.

## 1.05 PLANNING PHASE

- A. Overview of Planning Phase:
1. Define approach and timing for Commissioning.
- B. Commissioning Schedule:
1. Commissioning overview:
    - a. Comply with Commissioning Roles and Responsibilities Matrix specified at the end of this Section.
  2. Submittal due date:
    - a. Submit Commissioning Schedule not less than 60 calendar days prior to planned initial commissioning of each subsystem or system.
  3. Schedule requirements:
    - a. Schedule durations and float for commissioning activities to ensure Work does not fall behind schedule due to complications or delays during commissioning.
    - b. Time-scaled network diagram detailing the work to take place in the period between 90 calendar days prior to planned initial commissioning of equipment and systems, and prior to the date of Substantial Completion, together with supporting narrative.
    - c. Provide detailed schedule of commissioning activities including durations and sequencing requirements.
      - (1) Identify the following activities:
        - (a) Testing and Training Phase:
          - (i) Source Testing.
          - (ii) Owner Training.
          - (iii) Installation Testing.
          - (iv) Functional Testing.

- (v) Clean Water Facility Testing.
- (vi) Closeout Documentation.
- (b) Process Start-Up Phase:
  - (i) Process Start-Up.
  - (ii) Process Operational Period.
  - (iii) Instrumentation and Controls Fine-Tuning.
- d. Schedule manufacturer's services to avoid conflict with other on-site testing or other manufacturers' on-site services.
- e. Verify that conditions necessary to allow successful testing have been met before scheduling services.

C. Subsystem Testing Plans:

1. Provide separate testing plans for each individual subsystem and system that include the following:
  - a. Approach to testing including procedures, schedule, and recirculation requirements.
  - b. Test objective: Demonstrate subsystem meets the design requirements as specified in the technical sections.
  - c. Test descriptions, forms, temporary systems (pumps, piping, etc.), shutdown requirements for existing systems, test forms, test logs, witness forms, and checklists to be used to control and document the required tests.
  - d. Test forms: Include, but not limited to, the following information:
    - (1) Tag and name of equipment/system to be tested.
    - (2) Test date.
    - (3) Names of persons conducting the test.
    - (4) Names of persons witnessing the test, where applicable.
    - (5) Test data.
    - (6) Applicable project requirements.
    - (7) Check offs for each completed test or test step.
    - (8) Place for signature of person conducting tests and for the witnessing person, as applicable.
  - e. Define start-up sequencing of unit processes:
    - (1) Include testing of alarms, interlocks, permissives, control circuits, capacities, speeds, flows, pressures, vibrations, sound levels, and other parameters.
    - (2) Provide detailed test procedures setting forth step-by-step descriptions of the procedures for systematic testing of equipment/system.
    - (3) Demonstrate proper rotation, alignment, speed, flow, pressure, vibration, sound level, adjustments, and calibration.
      - (a) Perform initial checks in the presence of and with the assistance of the manufacturer's representative.
    - (4) Demonstrate proper operation of each control loop function including mechanical, electrical, alarms, local and remote controls, instrumentation, and other equipment/system functions.
      - (a) Generate signals with test equipment/system to simulate operating conditions in each control mode.
2. Owner approval of test plan is required prior to performing test.
  - a. Revise and update test plans based on review comments, actual progress, or to accommodate changes in the sequence of activities.
  - b. Submit test reports for each phase of testing for each equipment/system.
  - c. Owner approval of preceding test reports is required prior to start of next test.

- d. Tests will be rescheduled if test plan is not approved by the required deadline.
  - (1) Design-Builder is responsible for any resulting delay.
- 3. Design-Builder is responsible to reproduce and distribute final test procedures.
  - a. Provide 3 copies for Owner.
- 4. Tests may commence only after Owner has received approved test plan copies.
- 5. Submittals:
  - a. Submit test plans not less than 90 calendar days prior to planned installation testing of subsystem or system.
  - b. Completed Manufacturer's Certificate of Installation and Functionality Compliance.
  - c. Test procedures and forms: Provide signed-off copy of test forms and test reports upon completion of the test.
  - d. Test reports:
    - (1) Submit preliminary copies within 1 day after testing completion.
    - (2) Submit final copies and report within 14 days after testing completion.

## 1.06 TESTING PHASE

### A. Overview of Testing Phase:

- 1. General:
  - a. Include specified Source Testing, Installation Testing, Functional Testing, Clean Water Facility Testing, and Closeout Documentation required by this Section and the technical sections.
- 2. Design-Builder responsibilities:
  - a. Furnish labor, power, chemicals, tools, equipment, instruments, and services required for and incidental to completing commissioning activities in accordance with the approved Commissioning Plans.
  - b. Prior to testing, verify equipment protective devices and safety devices have been installed, calibrated, and tested.
  - c. Acceptable tests: Demonstrate the equipment/system performance meets the requirements stated in the Contract Documents.
    - (1) When the equipment/system fails to meet the specified requirements, perform additional, more detailed, testing to determine the cause, correct, repair, or replace the causative components and repeat the testing that revealed the deficiency.

### B. Source testing:

- 1. Also referred to as factory testing or factory acceptance testing (FAT).
- 2. Test components, devices, and equipment/system for proper performance at point of manufacture or assembly as specified in the technical sections.
- 3. Notify the Owner in writing when the equipment/system is ready for source inspection and testing.
- 4. Source Test Plan:
  - a. As specified in this Section and other technical sections.
  - b. Source testing requirements as specified in technical sections.
    - (1) Non-witnessed: Provide Manufacturer's Certificate of Source Testing.
    - (2) Witnessed: 1 Owner's representative and others, as appropriate, present during testing, unless otherwise specified, and provide Manufacturer's Certificate of Source Testing.
  - c. Prepared by Design-Builder as a result of discussions and planning emerging from regularly conducted commissioning meetings for source tests as specified in the Contract Documents.
  - d. Provide the following items for each Source Test:
    - (1) Purpose and goals of the test.

- (2) Identification of each item of equipment/system, including system designation, location, tag number, control loop identifier, etc.
  - (3) Description of the pass/fail criteria that will be used.
  - (4) Listing of pertinent reference documents (Contract Documents and industry standards or sections applicable to the testing).
  - (5) Complete description, including drawings or photographs, of test stands and/or test apparatus.
  - (6) Credentials of test personnel.
  - (7) Descriptions of test equipment to be used, product information, and all appropriate calibration records for the test equipment.
  - (8) Test set-up procedures.
  - (9) Detailed step-by-step test procedures.
    - (a) The level of detail shall be sufficient for any witness with a rudimentary technical aptitude to be able to follow the steps and develop confidence that the tests were being performed as planned.
    - (b) All steps are significant, and all steps shall be included in the procedures.
  - (10) Sample data logs and data recording forms.
  - (11) Sample computations or analyses with the results in the same format as the final report to demonstrate how data collected will be used to generate final results.
    - (a) Complete disclosure of the calculation methodologies.
    - (b) Include a sample for each type of computation required for the test and analysis of the results.
  - (12) Detailed outline of the Source Test report.
  - (13) Sample test reports.
- e. Submit Source Test Plan and forms as specified in the technical sections.
- (1) Submit a copy of the Source Test Plan at least 21 days before any scheduled test date.
  - (2) Owner approval of Source Test Plan required prior to beginning source testing.
  - (3) Schedule the testing after approval of the test procedures submittal.
- f. Indicate the desired dates for source inspection and testing.
- (1) Notify the Owner of the scheduled tests a minimum of 15 days before the date of the test.
5. Test results:
- a. Prepare and submit test results with collected data attached.
6. Owner is responsible for costs associated with Owner's representatives witnessing initial Source Tests.
- a. If Source Test is not ready when the witnesses arrive or if the Source Test fails, the witnesses will return home with Design-Builder responsible for costs associated with the trip including costs described below. Design-Builder is responsible for rescheduling the Source Test and witnesses' costs associated with the second trip including costs described below.
    - (1) On-site time: 1 day at the site plus travel time each direction, unless specified otherwise.
    - (2) Transportation costs:
      - (a) Travel 1 day on commercial airline to site including air flight costs.
      - (b) Travel 1 day on commercial airline from site including air flight costs.
      - (c) Mid-size rental car or taxi services from hotel to and from the test site plus fuel, tolls, and airport parking at the departing airport.
      - (d) International travel: Per-diem rates as established by the US Department of State for the specific location and dates of travel. Travel expenses may include the direct cost of securing passports, visas, language interpreters, document translators, communications, and internet access.

- (3) Hotel costs at a facility with an American Automobile Association 3 diamond rating or better for single occupancy room per person per day.
  - (4) Meal allowance of \$61 per person per day.
  - (5) On-site time: 1 day at the site, unless specified otherwise.
  - (6) Only actual costs will be documented and billed.
  - b. Fees incurred such as airline reservation change fees, loss of fare due to purchase of nonrefundable tickets, hotel cancellation/rebooking fees, and similar expenses incurred as a result of OSS-requested changes to the inspection schedule after the initial notification shall be borne by the Design-Builder.
  - c. Design-Builder is responsible for witnesses' costs associated with retests including costs described above.
7. Design-Builder is responsible for providing fuel, chemicals, and other consumables needed for Source Testing.

C. Installation Testing:

- 1. Perform subsystem testing according to approved Subsystem Testing Plans.
- 2. Initiate the Manufacturer's Certificate of Proper Installation for all equipment.
  - a. Manufacturer's Certificate of Proper Installation form is included in this Section.
  - b. Manufacturer's Certificate of Proper Installation certifies the equipment meets the following requirements:
    - (1) Has been properly installed, adjusted, aligned, and lubricated.
    - (2) Is free of any stresses imposed by connecting piping or anchor bolts.
    - (3) Is able to be operated as necessary for Functional Testing.
  - c. Form shall be submitted after completion of Functional Testing, as specified in this Section.
- 3. Coordinate Installation Testing with restrictions and requirements as specified in Section 01140 - Work Restrictions.
- 4. Perform coating holiday testing as specified in Section 09960 - High- Performance Coatings.
- 5. Perform pressure and leakage testing as specified in individual component Sections.
- 6. Perform mechanical equipment Installation Testing: As in individual equipment sections.
  - a. Remove rust preventatives and oils applied to protect equipment during construction.
  - b. Flush lubrication systems and dispose of flushing oils.
    - (1) Recharge lubrication system with lubricant recommended by manufacturer.
  - c. Flush fuel system and provide fuel for testing and start-up.
  - d. Install and adjust packing, mechanical seals, O-rings, and other seals. Replace defective seals.
  - e. Remove temporary supports, bracing, or other foreign objects installed to prevent damage during shipment, storage, and erection.
  - f. Check rotating machinery for correct direction of rotation and for freedom of moving parts before connecting driver.
  - g. Perform cold alignment and hot alignment to manufacturer's tolerances.
  - h. Adjust V-belt tension and variable pitch sheaves.
  - i. Inspect hand and motorized valves for proper adjustment.
    - (1) Tighten packing glands to ensure no leakage but permit valve stems to rotate without galling.
    - (2) Verify valve seats are positioned for proper flow direction.
  - j. Tighten leaking flanges or replace flange gasket.
    - (1) Inspect screwed joints for leakage.
  - k. Install gratings, safety chains, handrails, shaft guards, and sidewalks prior to operational testing.
- 7. Instrumentation devices and subsystems Installation Testing.

D. Functional Testing:

1. Perform subsystem testing according to approved Subsystem Testing Plan.
2. Notify the Owner 5 days prior to when the Work is ready for Functional Testing.
  - a. Perform testing in the presence of the Owner.
3. Determine Functional Testing durations with Owner's input.
  - a. Durations will vary depending on the availability of water for testing.
  - b. Target minimum Functional Test duration: 8 hours.
    - (1) Identify equipment/system that cannot be tested for a minimum of 8 hours as specified in technical sections.
4. Perform Functional Testing as specified in technical sections.
  - a. Perform Functional Testing in addition to the other tests specified in the technical sections.
  - b. Perform Functional Testing to demonstrate that the component equipment functions as an entire system in accordance with the design requirements.
  - c. Perform Functional Testing to demonstrate that the unit process has operated in a manner necessary to demonstrate equipment/system functions manually in local, manually in remote (or remote manual), and automatically in remote (in remote auto).
  - d. Perform testing with Design-Builder-provided water.
  - e. Repair or replace parts that operate improperly and retest.
  - f. Submit testing results as specified in the technical sections to the Owner for approval of Functional Testing results.
5. Provide completed Manufacturer's Certificate of Installation and Functionality Compliance forms for all equipment.
  - a. Manufacturer's Certificate of Installation and Functionality Compliance form is included in this Section.
  - b. Manufacturer's Certificate of Installation and Functionality Compliance certifies the equipment/system meets the following requirements:
    - (1) Is suitable for satisfactory full-time operation under full-load conditions.
    - (2) Operates within the allowable limits for vibration and noise.
    - (3) Electrical and instrumentation requirements:
      - (a) Electrical equipment, instrumentation, and control panels are properly installed, calibrated, and functioning.
      - (b) Electrical Installation Testing is complete, and test results have been approved by the Owner.
        - (i) Noted deficiencies have been corrected.
        - (ii) Relays, circuit breakers, and other protective devices are set.
      - (c) Control logic for start-up, shutdown, sequencing, interlocks, control, and emergency shutdown has been tested and is properly functioning.
      - (d) Motor control is calibrated and tested.

E. Closeout documentation:

1. Submittals:
  - a. Provide records generated during Commissioning Phase of Project.
    - (1) Required documents include but are not limited to:
      - (a) Manufacturer's Certificate of Source Testing.
      - (b) Manufacturer's Certificate of Installation and Functionality Compliance.
      - (c) Daily logs of equipment/system testing identifying tests conducted and outcome.
      - (d) Test forms and documentation.
      - (e) Functional Testing results.

- (f) Logs of time spent by manufacturer's representatives performing services on the job site.
- (g) Equipment lubrication records.
- (h) Electrical phase, voltage, and amperage measurements.
- (i) Insulation resistance measurements.
- (j) Bearing temperature measurements.
- (2) Data sheets of control loop testing including testing and calibration of instrumentation devices and setpoints. Format: 2 electronic copies and 3 hard copies organized in notebooks.
- (3) Due date: Within 14 calendar days of Substantial Completion.

## 1.07 PROCESS START-UP PHASE

### A. Overview of Process Start-Up Phase:

1. Operating the facility to verify performance meets the Contract Document requirements.

### B. Process Start-Up:

1. Perform process start-up in the presence of the Owner.
2. Pre-start-up activities:
  - a. Commissioning Documentation and Data Review.
  - b. Start-Up Go/No-Go Decision Criteria.
  - c. Building and Fire Inspection Compliance Check.
  - d. Process Start-Up Sequence Review.
    - (1) Submit a Process Start-Up plan for review by Owner not less than 90 calendar days prior to planned commencement of process start-up activities.
    - (2) Include the following:
      - (a) Pre-start-up activities.
      - (b) Process Start-Up.
      - (c) Process Operational Period.
  - e. Description of Temporary Testing Arrangement, if applicable.
  - f. Final Process Start-Up Forms and Documentations.
  - g. Final Operational Testing Plan.
3. Control loop tuning.
  - a. Perform control loop tuning during system testing with water to the extent possible.
4. Process area start-ups.
  - a. Process start-up individual process areas comprised of multiple interdependent systems where possible and beneficial to reduce complexity and risk of complete facility testing.
  - b. Process area test flows may be limited by upstream and downstream process constraints (i.e., tank and basin volumes) and/or localized recirculation capabilities.
5. Facility-wide process start-up.
  - a. Upon approved completion of pre-start-up activities, perform entire facility process start-up.
    - (1) Complete control loop tuning during this phase of process start-up.
    - (2) Continue process start-up operations until facility meets or exceeds the Contract requirements.
  - b. Ancillary systems start-up and testing:
    - (1) Test complete security system, phone system, fire alarm system, etc. for the facility.
  - c. Remaining equipment/system tests:

- (1) Conduct remaining specified equipment/system performance tests that could not be performed during the Testing and Training Phase due to inter-system and/or treatment process dependencies.

C. Process Operational Period:

1. Prior to beginning the Process Operational Period:
  - a. Conformance with treatment standards is required prior to Operational Testing, if applicable.
    - (1) Biological processes require time to build up the necessary population of organisms to meet treatment standards, as specified in Section 01140 - Work Restrictions.
  - b. Correct any outstanding punch list items prior to the Operational Testing.
2. Duration: 30 calendar days.
3. Owner will be present for process operational period unless such presence is expressly waived in writing.
4. Prove facility conformance with Contract Document requirements.
5. Design-Builder to provide:
  - a. Specified start-up materials and operating supplies.
  - b. Necessary craft of labor assistance, in the event of an emergency equipment failure requiring immediate attention (emergency is defined as a failure of function which precludes the further operation of a critical segment of or the whole of the Work) with a response time of not more than 4 hours from the time of notification.
  - c. Manufacturer's authorized representative to supervise placing equipment/systems in operation and provide guidance during Operational Testing per applicable section.
  - d. Necessary manufacturer's representatives and operating supplies for retesting systems that fail to pass the initial Operational Testing due to deficiencies in products of workmanship at no additional cost to the Owner.
  - e. List of 24-hour "on-call" representative supervisory persons who will monitor the Operational Testing and serve as liaison for the Owner.
6. Owner will provide:
  - a. Operations personnel for duration of test.
7. Prior to date of Substantial Completion of Installation, the Design-Builder's COMMISSIONING MANAGER shall oversee Process Operational Period.
  - a. Owner staff will operate the completed Project construction.
  - b. Entire system shall continuously meet performance requirements and shall operate without fault, failure, or defect for a continuous period.
  - c. Individual equipment/system failures that are corrected within 24 hours and do not prevent the entire project from continuously satisfying the established operational requirements shall not require the consecutive day test to be restarted unless the failure recurs.
  - d. Restart the consecutive test period for any of the following conditions:
    - (1) Any failure of the complete Project construction to meet operational requirements.
    - (2) When malfunctions or deficiencies cause shutdown or partial operation of the facility, or results in failure of the complete Project construction to meet operational requirements.
    - (3) Any individual equipment/system failure that meets any of the following conditions:
      - (a) Requires more than 24 hours to correct.
      - (b) Recurs within the 24-hour correction period requiring further correction.
    - (4) Immediately correct defects in material, workmanship, or equipment/system which became evident during Operational Testing.

1.08 INSTRUMENTATION AND CONTROLS FINE-TUNING

A. Not Used.



PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

**MANUFACTURER'S CERTIFICATE OF SOURCE TESTING**

OWNER \_\_\_\_\_ EQPT/SYSTEM \_\_\_\_\_  
PROJECT NAME \_\_\_\_\_ EQPT TAG NO. \_\_\_\_\_  
PROJECT NO. \_\_\_\_\_ EQPT SERIAL NO. \_\_\_\_\_  
SPECIFICATION NO. \_\_\_\_\_  
SPECIFICATION TITLE \_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

I hereby certify Source Testing has been performed on the above-referenced equipment/system as defined in the Contract Documents, and results conform to the Contract Document requirements. Testing data is attached.

Date of Execution: \_\_\_\_\_, 20\_\_\_\_

Manufacturer: \_\_\_\_\_

Manufacturer's Authorized Representative Name (*print*): \_\_\_\_\_

\_\_\_\_\_  
(Authorized Signature)

If applicable, Witness Name (*print*): \_\_\_\_\_

\_\_\_\_\_  
(Witness Signature)

**MANUFACTURER'S CERTIFICATE OF INSTALLATION AND FUNCTIONALITY  
COMPLIANCE**

OWNER \_\_\_\_\_ EQPT/SYSTEM \_\_\_\_\_  
PROJECT NAME \_\_\_\_\_ EQPT TAG NO. \_\_\_\_\_  
PROJECT NO. \_\_\_\_\_ EQPT SERIAL NO. \_\_\_\_\_  
SPECIFICATION NO. \_\_\_\_\_  
SPECIFICATION TITLE \_\_\_\_\_

I hereby certify that the above-referenced equipment/system has been: (Check Applicable)

- Installed in accordance with manufacturer's recommendations.
- Inspected, checked, and adjusted.
- Serviced with proper initial lubricants.
- Electrical/instrumentation and mechanical connections meet quality and safety standards.
- All applicable safety equipment has been properly installed.
- Functionally tested.
- System has been performance tested and meets or exceeds specified performance requirements.

**NOTES:**

Attach test results with collected data and test report.

Attach written certification report prepared by and signed by the electrical and/or instrumentation subcontractor.

Comments: \_\_\_\_\_

I, the undersigned manufacturer's representative, hereby certify that I am (i) a duly authorized representative of the manufacturer, (ii) empowered by the manufacturer to inspect, approve, and operate this equipment/system, and (iii) authorized to make recommendations required to ensure that the equipment/system furnished by the manufacturer is complete and operational, except as may be otherwise indicated herein. I further certify that all information contained herein is true and accurate.

Date: \_\_\_\_\_, 20 \_\_\_\_

Manufacturer: \_\_\_\_\_

Manufacturer's Authorized Representative Name (*print*): \_\_\_\_\_

By Manufacturer's Authorized Representative: \_\_\_\_\_

(Authorized Signature)

## COMMISSIONING

### COMMISSIONING ROLES AND RESPONSIBILITIES MATRIX

NO.	TASK	OWNER	DESIGN-BUILDER	OWNER REP
<b>Testing and Training Phase</b>				
<b>Source Testing</b>				
1	Source Testing	Witness	Lead	Witness, Review
<b>Installation Testing</b>				
2	Electrical Conductor Testing	No Action	Lead	Witness
3	Electrical Field Acceptance Tests	No Action	Lead	Witness
4	Instrument Field Calibration	No Action	Lead	Witness
5	Network Installation Testing	Witness	Lead	Witness
6	Loop Testing	Witness	Lead	Witness
7	Pressure Testing	No Action	Lead	Witness
8	Leak Testing	No Action	Lead	Witness
9	Holiday Testing	No Action	Lead	Witness
<b>Functional Testing</b>				
10	Network Operational Testing	Witness	Lead	Review
11	Preliminary Run Testing Local/Manual Control	Witness	Lead	Review
12	PCIS Functional Demonstration Testing - Local/Auto Control Testing - Remote/Manual Contact Testing - Alarm Testing - Control Loop Testing	No Action	Lead	Review
13	Subsystem Start-Up and Testing	Witness	Lead	Review
14	Equipment/System Start-Up and Testing	Witness	Lead	Review
15	Corrosion Control Start-Up and Testing	Witness	Lead	Review
16	Wide Area Network Communications Testing	Support	Lead	Witness
17	Manufacturer's Certificate of Installation and Functionality Compliance	No Action	Lead	Witness, Review
<b>Process Start-Up Phase</b>				
<b>Process Start-Up</b>				
18	Commissioning Documentation and Data Review	Review	Support	Lead
19	Start-Up Go/No-Go Decision Criteria	Lead	Support	Review
20	Building and Fire Inspection Compliance Check	No Action	Lead	Witness

NO.	TASK	OWNER	DESIGN-BUILDER	OWNER REP
<b>Testing and Training Phase</b>				
21	Start-Up Sequence Review	Support	Lead	Review
22	Temporary Testing Arrangement Finalization	Support	Lead	Support
23	Start-Up Forms Finalization	Support	Lead	Support
24	Operation Testing Plan Finalization	Review	Support	Lead
25	Test Water Management Plan Finalization	Support	Lead	Review
26	System Testing	Support	Lead	Witness
27	Control Loop Tuning	Support	Lead	Witness
28	Process Area Start-Ups	Support	Lead	Witness
29	Facility-Wide Start-Up	Support	Lead	Witness
<b>Process Operational Period</b>				
30	Operational Testing	Support	Lead	Witness, Review
31	Final Testing Reports	Support	Lead	Review
32	Water Quality Testing and Documentation	Support	Lead	Review
<p><b>Legend:</b></p> <p><b>Lead:</b> Primarily responsible for organization, coordination, and execution of task work product or result.</p> <p><b>Support:</b> Assist the lead with organization, coordination, and execution of task work product or result.</p> <p><b>Witness:</b> Observe and document completion of task work product or result.</p> <p><b>Review:</b> As necessary to accept task work product result.</p> <p><b>No Action:</b> Limited or no involvement.</p>				

## SECTION 01783

### OPERATION AND MAINTENANCE DATA

#### PART 1 - GENERAL

##### 1.01 SUMMARY

- A. This Section includes administrative and procedural requirements for the preparation, submission, and Project Manager's review of Operation and Maintenance (O&M) Data.
  - 1. The Design-Builder shall furnish all labor, materials, equipment, and incidentals as necessary to comply with these requirements.

##### 1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract; including General and Supplementary Conditions, all applicable Division 1 Sections, and all applicable Division Sections; apply to this Section.
- B. Related Sections include the following:
  - 1. Division 1 Section "Closeout Procedures" for general closeout.
  - 2. Divisions 2 through 16 Sections for specific requirements for Operation and Maintenance (O&M) Data Documents of products in those Sections.

##### 1.03 DEFINITIONS

- A. Preliminary Data: Initial and subsequent submissions for Project Manager's review.
- B. Final Data: Project Manager accepted data, submitted as specified herein.
- C. Maintenance Operation: As used on Maintenance Summary Form is defined to mean any routine operation required to ensure satisfactory performance and longevity of equipment. Examples of typical maintenance operations are lubrication, belt tensioning, adjustment of pump packing glands, and routine adjustments.

##### 1.04 SUBMITTALS

- A. Informational:
  - 1. Data Outline: Submit two copies of a detailed outline of proposed organization and contents of Final Data prior to the preparation of the Preliminary Data.
  - 2. Preliminary Data:
    - a. Submit three copies for Project Manager's review including Relevant Standard Operation Procedures.
    - b. If Data meets the condition of the Contract:
      - (1) One copy will be returned to Design-Builder
      - (2) One copy will be forwarded to Resident Project Representative.
      - (3) One copy will be retained in Project Manager's file.

c. If Data does not meet conditions of the Contract:

- (1) All copies will be returned to Design-Builder with Project Manager's comments (on separate document) for revision.
- (2) Project Managers comments will be retained in Project Manager's file.
- (3) Resubmit two copies revised in accordance with Project Manager's comments.

3. Final Data: Submit two copies in format specified herein with an electronic copy of the standard operating procedures (SOPs) for each unit process.

## 1.05 SEQUENCING AND SCHEDULING

A. Equipment and System Data:

1. Preliminary Data:

- a. Do not submit until Shop Drawings for equipment or system has been reviewed and approved by Project Manager.
- b. Submit prior to shipment.

2. Final Data: Submit instructional Manual Formatted data not less than 30 days prior to equipment or system field functional testing Submit Compilation Formatted and Electronic Media Formatted data prior to Substantial Completion of Project.

B. Materials and Finish Data:

1. Preliminary Data: Submit at least 15 days prior to request for final inspection.
2. Final Data: Submit within 10 calendar days after final inspection.

## PART 2 - PRODUCTS

### 2.01 DATA FORMAT

A. Prepare preliminary and final data in the form of an instructional manual. Prepare final data on electronic media.

B. Instructional Manual Format:

1. Binder: Commercial quality, permanent, three ring or three post binder with durable plastic cover.
2. Size: 8 ½ inches by 11 inches minimum
3. Cover: Identify manual with typed or printed title, "OPERATION AND MAINTENANCE DATA" and list.
  - a. Project title
  - b. Designate applicable system, equipment, material, or finish.
  - c. Identify separate structure as applicable.
  - d. Identify volume number if more than one volume

- e. Identity of general subject matter covered in manual. Identity of equipment number and Specification section.

4. Spine:

- a. Project title
- b. Identify volume number if more than one volume.

5. Title page

- a. Design-Builder name, address, and telephone number.
- b. Subcontractor, supplier, installer, or maintenance Design-Builder's name, address, and telephone number, as appropriate.
  - (1) Identify area of responsibility of each
  - (2) Provide name and telephone number of local source of supply of parts and replacement.

6. Table of Contents:

- a. Neatly typewritten and arranged in systematic order with consecutive page numbers.
- b. Identify each product by product name and other identifying numbers or symbols as set forth in Contract Documents.

7. Paper: 20 pound minimum, white for typed pages

8. Text: Manufacturer's printed data, or neatly typewritten.

9. Three hole punch data for binding and composition; arrange printing so that punched hole do not obliterate data.

10. Material shall be suitable for reproduction, with quality equal to original. Photocopying of material will be acceptable, except for material containing photographs.

C. Data Compilation Format:

1. Compile all Project Manager's accepted preliminary O&M data into a hard copy, hard bound set.

2. Each set shall consist of the following:

- a. Binder: Commercial quality, permanent, three ring or three post binders with durable plastic covers.
- b. Cover: Identify each volume with typed and printed title "OPERATION AND MAINTENANCE DATA, VOLUME NO. \_\_\_\_\_ OF \_\_\_\_\_", and list:

- (1) Project title
- (2) Design-Builder's name, address, and telephone number.
- (3) If entire volume covers equipment or system provided by one supplier include the following:

- (a) Identity of general subject matter covered in manual



- (b) Identity of equipment number and Specification section.
- c. Provide each volume with title page and typed table of contents with consecutive page numbers. Place contents of entire set, identified by volume number, in each binder.
- d. Table of contents neatly typewritten, arranged in a systematic order:
  - (1) Include list of each product, indexed to content of each volume.
  - (2) Designate system or equipment for which it is intended.
  - (3) Identify each product by product name and other identifying numbers or symbols as set forth in Contract Documents.
- e. Section Dividers:
  - (1) Heavy, 80 pound cover weight, tabbed with numbered plastic index tabs.
  - (2) Fly leaf:
    - (a) For each separate product, or each piece of operating equipment, with typed description of product and major component parts of equipment.
    - (b) List with each product:
      - (i) Name, address, and telephone number of Sub-contractor, Supplier, Installer, and Maintenance contractor, as appropriate.
      - (ii) Identify area of responsibility of each.
      - (iii) Provide local source of supply for parts and replacement.
- f. Assemble and bind material, as much as possible, in same order as specified in the Contract Documents.

#### D. Electronic Media Data:

- 1. Portable Document Format (PDF):
  - a. After all preliminary data has been found to be acceptable to Project Manager, submit Operation and Maintenance data in PDF format on CD.
  - b. Files to be exact duplicates of Project Manager's accepted preliminary data. Arrange by specification number and name.
  - c. Files to be fully functional and viewable in most recent version of Adobe Acrobat.

## 2.02 DATA FOR EQUIPMENT SYSTEMS

### A. Content for each Unit (or Common Units) and System:

- 1. Product Data:
  - a. Include only those sheets that are pertinent to specific product.
  - b. Clearly annotate each sheet to:
    - (1) Identify specific product or part installed.

- (2) Identify data applicable to installation
  - (3) Delete references to inapplicable information.
- c. Function, normal operating characteristics, and limiting conditions.
  - d. Performance curves, engineering data, nameplate data, and tests.
  - e. Complete nomenclature and commercial number of replaceable parts.
  - f. Original manufacturer's parts list, illustrations, detailed assembly drawings showing each part with part numbers and sequentially numbered parts list, and diagrams required for maintenance.
  - g. Spare parts ordering instructions
  - h. Where applicable, identify installed spares and other provisions for future work (e.g., reserved panel space, unused components, wiring, terminals).
- 2. As installed, color coded piping diagrams.
  - 3. Charts of valve tag numbers, with the location and function of each valve.
  - 4. Drawings: Supplement product data with drawings as necessary to clearly illustrate:
    - a. Format:
      - (1) Provide reinforced, punched, binder tab; bind in with text.
      - (2) Reduced to 8 ½ inches by 11 inches, or 11 inches by 17 inches folded to 8 ½ inches by 11 inches.
      - (3) Where reduction is impractical, fold and place in 8 ½ inch by 11 inch envelopes bound in text.
      - (4) Identify Specification section and product on drawings and envelopes.
    - b. Relations of component parts of equipment and systems.
    - c. Control and flow diagrams.
    - d. Coordinate drawings with Project record documents to assure correct illustration of completed installation.
  - 5. Instructions and procedures: Within text, as required to supplement product data.
    - a. Format:
      - (1) Organize in consistent format under separate heading for each different procedure.
      - (2) Provide logical sequence of instructions for each procedure.
      - (3) Provide information sheet for Owner's personnel, including:
        - (a) Proper procedures in event of failure
        - (b) Instances that might affect validity of guarantee or Bond.
    - b. Installation Instructions: Including alignment, adjusting, calibrating, and checking.
    - c. Operating Procedures:
      - (1) Startup, break-in, routine, and normal operating instructions.
      - (2) Test procedures and results of factory tests where required.

- (3) Regulation, control, stopping, and emergency instructions.
- (4) Description of operation sequence by control manufacturer.
- (5) Shutdown instructions for both short and extended duration.
- (6) Summer and winter operating instructions, as applicable.
- (7) Safety precautions.
- (8) Special operating instructions.

d. Maintenance and Overhaul Procedure:

- (1) Routine maintenance.
- (2) Guide to troubleshooting
- (3) Disassembly, removal, repair, reinstallation, and re-assembly.

6. Guarantee, Bond, and Service Agreement: In accordance with Section 01019, "Closeout Procedures".
7. Standard Operating Procedures for each unit process in KCMO Water Services Format approved by the KCMO Project Manager and Utility and created by the engineer of record or an alternative acceptable to the KCMO Project Manager.

B. Content for each Electric or Electronic Item or System:

1. Description of Unit and Component Parts:

- a. Function, normal operating characteristics, and limiting conditions.
- b. Performance curves, engineering data, nameplate data, and tests.
- c. Complete nomenclature and commercial number of replaceable parts.
- d. Interconnection wiring diagrams, including control and lighting systems.
- e. Piping and Instrument Diagram of the unit.

2. Circuit Directories of Panelboards

3. Electrical service

4. Control requirements and interface

5. Communication requirements and interfaces

6. List of electrical relay settings, and control and alarm contact settings.

7. Electrical interconnection wiring diagram, including as applicable, single line, three line, schematic and internal wiring, and external interconnection wiring.

8. As installed control diagrams by control manufacturer.

9. Operating Procedures:

- a. Routine and normal operating instructions.
- b. Startup and shutdown sequences, normal, and emergency
- c. Safety precautions
- d. Special operating instructions.

10. Maintenance Procedures

- a. Routine maintenance
- b. Guide to troubleshooting
- c. Adjustment and checking
- d. List of relay settings, control, and alarm contact settings

11. Manufacturer's printed operating and maintenance instructions.
12. List or original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.

C. Maintenance Summary:

1. Complete individual Maintenance Summary for each applicable equipment item, respective unit or system, and for components or sub-units.
2. Format:
  - a. Use Maintenance Summary Form bound with this section or electronic facsimile of such.
  - b. Each Maintenance Summary may take as many pages as required.
  - c. use only 8 ½ inch by 11 inch size paper.
  - d. Complete using typewritten or electronic printing.
3. Include detailed lubrication instructions and diagrams showing points to be greased or oiled; recommended type, grade, and temperature range of lubricants and frequency of lubrication.
4. Recommended Spare Parts
  - a. Data to be consistent with manufacturer's Bill of Materials/Parts List furnished in O&M manuals.
  - b. "Unit" is the unit of measure for ordering the part.
  - c. "Quantity" is the number of units recommended.
  - d. "Unit Cost" is the current purchase price.

2.03 DATA FOR MATERIALS AND FINISHES

A. Content for Architectural Products, Applied Materials, and Finishes

1. Manufacturer's data, giving full information on products:
  - a. Catalog number, size, and composition.
  - b. Color and texture designations.
  - c. Information required for reordering special manufactured products.
2. Instructions for Care and Maintenance:
  - a. Manufacturer's recommendation for types of cleaning agents and methods.
  - b. Cautions against cleaning agents and methods that are detrimental to product.
  - c. Recommended schedule for cleaning and maintenance.

B. Content for Moisture and Weather Exposed Products:

1. Manufacturer's data, giving full information on products:
  - a. Applicable standards
  - b. Chemical composition
  - c. Details of installation

2. Instructions for inspection, maintenance, and repair.

#### 2.04 Electronic O&M Manual (E-O&M)

- A. Design-Builder shall provide a project specific Electronic O&M manual (e-O&M), which shall supplement the texted-based O&M described. E-O&M shall contain the following information and functionalities.
  1. Images (Photographic or digitally rendered) of the facility shall be provided in a “main screen” location, with specific facilities and systems labeled with all relevant names including but not limited to common names and P&ID tags.
  2. Overall and Major system descriptions as provided in the O&M manual
  3. Construction photography providing a document of the construction progress, as well as buried/hidden piping, conduits, foundations, and other infrastructure not readily located after construction work at the facilities is complete
  4. Manufacturer’s shop drawings and O&M documents
  5. As-Constructed/Record drawings of the completed facility
  6. All system-specific information shall be organized into accessible files tied to each system. Access shall be through a written and/or graphic interface at the main screen.
- B. E-O&M will operate through adobe acrobat software unless Design Professional provides an alternative application that is accepted in writing by the City of Kansas City, MO
- C. A draft version of the e-O&M will be provided to the city for review and comment at approximately 90% completion of the facility.
- D. E-O&M will be installed at/on the project facility server or workstation(s) as appropriate and a copy will be provided to the CITY.
- E. Design-Builder will provide training on the use and update of the e-O&M to CITY. One training session lasting no longer than two (2) hours will be provided at the project location, Water Services offices, or Design-Builders officers, as agreed-upon by the CITY.

#### 2.05 SUPPLEMENTS

- A. The supplements listed below, following “End of Section”, are part of this Specification.
  1. Forms: Maintenance Summary Form

#### PART 3 - EXECUTION (Not Used)

END OF SECTION





## SECTION 01800

### OPERATIONAL CHANGE CONTROL PLAN (OCCP)

#### PART 1 GENERAL

##### 1.01 PURPOSE

- A. Under its several permits with the Missouri Department of Natural Resources (MDNR), the Water Services Department (WSD) is required to prevent sewage spills and bypasses which would allow untreated wastewater flows into the waters of the state. Construction operations also fall under the requirements of the permits. The City also has requirements to not allow any backup of sewage into any residence, place of business or other facility. Therefore, every precaution must be taken to prevent spills, backups and bypasses, accidental or otherwise. To assist in a successful maintenance or construction project, the Water Services Department has developed an Operational Change Control Plan (OCCP).
- B. The purpose of the plan is to perform the work in an expeditious manner, to prevent bypasses, backups and spills, to conform to all rules and regulations, to minimize shutdown time, and to allow for contingencies. The Design-Builder shall incorporate the requirements defined in the OCCPs into his construction schedule.
- C. In addition to the spill and bypass prevention requirements, the OCCP requires that all safety and health risks germane to this project be thoroughly anticipated, investigated and proper prevention procedures put into place. The Design-Builder shall integrate his health and safety procedures and any additional health and safety requirements of the WSD into the OCCP.
- D. Under the terms of this contract, the Design-Builder shall complete the formation of an OCCP for each subject facility and for each shutdown or outage. As outlined in these Contract Documents, the Work is to be completed without taking the 60-inch force mains out of service. Templates have been provided and are attached at the end of this section should this be impractical.

##### 1.02 DEFINITIONS

- A. Bypass. For the purposes of this OCCP, “Bypass” shall mean the direct flow of untreated wastewater into any stream, estuary, river or other body of water considered a “water” of the state. Bypasses shall not be permitted under the terms of this contract. (If circumstances warrant a bypass, all permits, authorizations and required procedures shall be in place before a bypass is allowed to occur. All reporting procedures shall be determined in advance and reports shall be promptly filed when and where required.)
- B. Pump Around. For the purposes of this OCCP, “Pump around” shall mean the transference of wastewater around any pump station or other facility but that said



wastewater is contained in the waste conveyance stream without any discharge to the environment.

### 1.03 OVERVIEW OF THE OCCP

- A. Any portion of any treatment facility, pump station, force main, control system, instrumentation or other component taken out of service affecting wastewater treatment must be preceded by an Operational Control Change Plan (OCCP). Each shutdown will require an additional unique OCCP.
- B. The preliminary OCCPs may be attached at the end of this section. They were prepared by the Water Services Department and shall be completed by the Design-Builder. Templates shall be written for each of the facilities where work will be performed under this contract by the Design-Builder.
- C. A Template OCCP is included in this specification.

### 1.04 STEPS

- A. The basic steps in the OCCP plan are outlined as follows:
  - 1. Key Plan information
  - 2. Works to be completed prior start of OCCP
  - 3. Plant Condition Required for Pump Around (Bypass)
  - 4. Contingency Actions
  - 5. Affected monitoring points and impact
    - a. Collection System Sewage Level Maintenance
    - b. Special points established for this operation
    - c. Treatment Plants affected
    - d. Alarm modifications for use in monitoring operation
    - e. Environmental spill risks
    - f. Wastewater quality impacts
  - 6. Pump Around (Bypass) Steps
  - 7. Shutdown Steps
  - 8. Facility Restart
  - 9. Distribution List

## PART 2 PRODUCTS (NOT USED)

## PART 3 EXECUTION

### 3.01 OCCP COMPLETION

- A. The Design-Builder shall evaluate the templates for the several facilities and complete the plan for each site. The completed plans shall be submitted to the Water Services Representatives for review and approval. Review and approval from both Engineering

and Operations is required for each OCCP. The Design-Builder is not obligated to submit the plans for all sites at the same time but must submit periodically to maintain conformance with the construction schedule.

- B. The Water Services Department will respond within five (5) working days.
- C. The Design-Builder may alter the means and methods outlined in the plans subject to the review and approval of the Water Services Department.

### 3.02 LOCATIONS

Multiple plans maybe be necessary. All Operational Change Control Plan (OCCP) shall be added to the list below during construction.

	Fac. No.	Facility	Address	Notes
1				
2				
3				
4				
5				
6				
7				

END OF SECTION 01800

# OPERATIONAL CHANGE CONTROL PLAN (OCCP)

Date of publication \_\_\_\_\_ OCCP # \_\_\_\_\_  
 Asset Name/ Number: \_\_\_\_\_  
 Section: Wastewater Treatment Division  
 Date of commencement: \_\_\_\_\_  
 Date of completion: \_\_\_\_\_  
 Description of Works: \_\_\_\_\_

*Provide a general description of the work activity performed under the OCCP. The intent of this section is to provide a short narrative of the work; however it will be important to put in enough detail for someone not intimately familiar with the work to understand the general work activities and any special hazards associated with the job. This section also provides a good starting point in providing the work force with a Pre-Job Brief before starting the work.*

## Key Plan information

<b>Description of Hold Points</b>	<i>Place a general description of the major hold points anticipated in the execution of the work. Examples of a hold point to place in this section include:</i> <ul style="list-style-type: none"> <li>• <i>Required work permits</i></li> <li>• <i>Required pre work inspections.</i></li> <li>• <i>Installation of specialized safety equipment</i></li> <li>• <i>Required management approval to proceed with phased work activities</i></li> <li>• <i>Weather conditions which would require termination of work activities</i></li> <li>• <i>Regulatory inspection requirements</i></li> <li>• <i>Requirements for Public Notification</i></li> <li>• <i>Wastewater Divergences or Facility By-Pass</i></li> <li>• <i>Formal Turnover to Third Party Vendors (e.g. during construction activities, etc)</i></li> </ul>
<b>Description of Hold Point 1</b>	
<b>Description of Hold Point 2</b>	
<b>Description of Hold Point 3</b>	
<b>Description of Hold Point 4</b>	
<b>Description of Hold Point 5</b>	
<b>Description of Hold Point</b>	
<b>Description of Hold Point</b>	
<b>Description of Hold Point</b>	
<b>Description of Hold Point</b>	
<b>WSD Treatment Plants Superintendent (Assigned Responsible Person for all matters related to plant operations or bypass oversight)</b>	<i>Name and Phone # of principle personnel in charge of work activities or a resource in the event issues must be resolved.</i> <i>NOTE: If a group is not involved in the work activity, delete the individual section. Also, should others not be listed below, the person completing the OCCP will add new listings as deemed appropriate.</i>
<b>WSD Chief Plant Operator</b>	
<b>WSD Engineer</b>	

WSD Reviewing Officer/Supervising Engineer.	
WSD maintenance superintendent	
WSD maintenance supervisor	
WSD Operation Manager (Assigned Responsible Person for all matters related to plant operations or bypass oversight)	
WSD Maintenance Manager (Assigned Responsible Person for all	
Coordination Meeting Date	<i>Put down dates for completed or anticipated coordination meetings. This will allow personnel involved in the OCCP project to meet and discuss work status and schedules.</i>
Pre-Job Coordination Meeting Date:	<i>Include both the date (use TBD where a date has not been identified) and a listing of all groups requiring the pre-job briefing (e.g. operations/maintenance crew, contractors, specialists, managers, etc.)</i>

**Works to be completed prior start of OCCP**

**Plant Condition Required for Bypass**

Operational Condition	Contingency Action
<i>Conditions which must be met in order to successfully complete the work activity.</i>	<i>Describe conditions which must be met and potential work arounds in order to ensure the Operational Condition have been met prior to progressing the OCCP work schedule.</i>

**Contingency Actions**

Mode of Failure/Incident	Contingency Action
<i>Discuss potential failure modes or conditions which may interrupt the completion of the OCCP work schedule</i>	<i>Discuss potential work arounds for identified problems or unacceptable work conditions</i>

**Affected monitoring points and impact**

- a) Collection System Sewage Level Maintenance

Description of Element	How is it affected
<i>Describe affect on the treatment plant, collection system or environment which may result in the implementation of the OCCP</i>	<i>Discuss how the plant, collection system or environment will be affected by the items listed in the "Description of Element". Be specific concerning the anticipated impact and what mitigation can be take to minimize adverse impact.</i>

**b) Special points established for this operation**

Description of point	Describe expectations
<i>Describe special requirements established by the Hold Points.</i>	<p><i>Discuss in specific detail all work actions, notifications and emergency response actions to be taken at each hold point.</i></p> <p><i>This section is intended to expand on the Hold Points identified above and explain the expectations of management in complying with those hold points. Use whatever detail is required in order for a third party observer to understand what is expected by the work team in meeting hold point conditions.</i></p> <ul style="list-style-type: none"> <li><i>• Describe the anticipated outcome of compliance with the Hold Point (e.g. notification completed, not Sanitary Sewer Overflow, Completion of pre-requisite work activities before moving on too next work phase, specific regulatory compliance requirement)</i></li> <li><i>• Specialize equipment required to complete the OCCP</i></li> <li><i>• Potential impacts on customers or governmental properties</i></li> <li><i>• Operational conditions adversely impacting NPDES compliance</i></li> <li><i>• Operational conditions adversely impacting the Process Management Plan</i></li> <li><i>• Adverse impact on the collection system or pump stations</i></li> <li><i>• Identified Safety Hazards where "Hold Points" must be signed off before progressing the work.</i></li> <li><i>• ETC.</i></li> </ul> <p><i>NOTE: All "HOLD POINTS" must have a corresponding description in this section.</i></p>

**c) Treatment Plants affected**

Description of Treat. Plant	How is it affected
	<p><i>Describe what impacts can be expected by the implementation of the OCCP (e.g. safety, process, equipment, special sampling requirements, etc)</i></p> <p><i>NOTE: Make sure impacts with potential NPDES impacts are addressed as a OCCP "Hold Point".</i></p>

**d) Alarm modifications for use in monitoring operation**

Alarm name	Alarm Level	New Alarm Level	Comments
			<i>Identify any changes to alarm settings which would result from the implementation of the OCCP.</i>

**e) Environmental spill risks**

Description of spill risks	Mitigating controls
	<i>Identify any special controls implemented to prevent the risk of Sanitary Sewer Overflows to the environment.</i>

## Wastewater quality impacts

Description of Impact	How it will be managed
<i>Identify the potential impacts with enough detail for clarity (e.g. NPDES violations, beach outage potential, etc)</i>	<i>Describe how responsible personnel will control potential water quality impacts and what actions must be taken in the event implementation of the OCCP results in a water quality impact.</i>

### Bypass Steps

Step	Description	Team	Time start	Time end
<b>HOLD POINT</b> <i>(List Hold Points relevant to potential facility bypasses)</i>	<i>Describe in detail all activities taken while performing a treatment plant facility bypass. Refer to the Standard Operational Procedure for Facility Bypass or Engineered Bypass.</i>  <i>NOTE: This section need only be filled out where a facility bypass is anticipated to result from the implementation of the OCCP.</i>			
<b>DISCONTINUE BYPASS</b>				
<b>NOTIFY WSD and REGULATORS of WORK COMPLETION</b>				

### SHUTDOWN STEPS

Step	Description	Team	Time start	Time end
<i>Describe steps need for any facility shutdown (e.g. Plant, Pump Station, Collection System)</i>	<i>Describe the specific work steps to be followed in order to complete an orderly shutdown of equipment or facilities. Include activities such as:</i> <ul style="list-style-type: none"> <li><i>• Equipment staging (be specific)</i></li> <li><i>• Preliminary work to be completed prior to shutdown (be specific)</i></li> <li><i>• Implementation of specific safety activities (e.g. LOTO, gas monitoring, excavation permits, lane closures/traffic revisions, etc.)</i></li> <li><i>• Work turnover requirements</i></li> <li><i>• Mandatory inspections</i></li> <li><i>• Potential treatment plant/system impacts</i></li> <li><i>• ETC.</i></li> </ul>			
1				
2				
3				
4				
5				
6				
7				

**Recommissioning**

notes for "SHUTDOWN STEPS" apply.

**FACILITY RE-START**

Step	Description	Team	Time start	Time end
<i>Describe all activities necessary to restart to facility (e.g. plant, pump station or collection system)</i>	<i>Provide "Step-by-Step" restart instruction to ensure the facilities taken off line by the OCCP are fully restarted and normal operations is obtained prior to close out of this section of the OCCP.</i>			
1				
2				
3				
4				
5				
6				
7				

**Distribution List**

WSD Positions	Name and Phone Numbers (where single)	Criteria
Relevant Personnel	<i>List personnel who would be relevant to response in the event issues are encountered through the execution of the OCCP which were not anticipated or are of an emergency nature.</i>	<i>Whole Plan</i>
Operations Manager		Whole Plan
Operations Superintendent		Whole Plan
Maintenance Manager		Whole Plan
Maintenance Superintendent		Whole Plan
General Manager		Whole Plan
Process Engineer		Whole Plan
Environmental Compliance		Whole Plan

Signature Page

Approved (Engineering) \_\_\_\_\_  
Signature Date

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

Approved (Operations) \_\_\_\_\_  
Signature Date

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

Approved (Contractor) \_\_\_\_\_  
Signature Date

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



## **SECTION 01900 – CONTRACT CLOSEOUT**

### **PART 1 - GENERAL**

#### **1.01 SUMMARY**

- A. This Section includes administrative and procedural requirements for contract closeout.
- B. Closeout requirements for specific construction activities are included in the appropriate Sections of the Contract Documents.

#### **1.02 SPECIFICATION MODIFICATIONS**

- A. It is understood that throughout this Section these Specifications may be modified by appropriate items in Section 01015 – Specific Project Requirements, or as otherwise indicated on the Contract Drawings.

#### **1.03 RELATED SECTIONS**

- A. Section 00700 – General Conditions.
- B. Section 00800 – Supplementary Conditions.
- C. Section 01015 – Specific Project Requirements.
- D. Section 01020 – Record Documents.
- E. Section 01300 – Submittals.

#### **1.04 DEFINITIONS**

- A. Achievement of Full Operation/Substantial Completion: See Section 00700 – General Conditions, paragraph 1.01.
- B. Substantial Completion: See Section 00700 – General Conditions, paragraph 1.01.

#### **1.05 INFORMATION PROVIDED BY THE CITY**

- A. Achievement of Full Operation or Substantial Completion (Section 00700, paragraph 14.04):
  - 1. If applicable, City will provide written notification that the Work does not meet the requirements for Achievement of Full Operation or Substantial Completion
  - 2. Certification of Achievement of Full Operation (Section 01290.12) or Certificate of or Substantial Completion.
  - 3. Written recommendation as to division of responsibilities pending final payment between City and Contractor with respect to security, operation, safety, protection of the Work, maintenance, heat, utilities, insurance and warranties and guarantees.
- B. Partial Utilization (Section 00700, paragraph 14.05):
  - 1. Written request for partial utilization.
- C. Punch list (Section 01290.13).
- D. Final Inspection (Section 00700, paragraph 14.06):
  - 1. Written report of all in which the Final Inspection reveals that the Work is incomplete or defective.

## 1.06 SUBMITTALS

- A. Submit as specified in Section 01300 – Submittals.
- B. Other Submittals:
  - 1. Notification of Achievement of Full Operation or Substantial Complete (Section 00700, paragraph 14.04.A).
  - 2. List of Incomplete Items (Section 00700, paragraph 14.04.A).
  - 3. Notification that the Work is complete and ready for Final Inspection (Section 00700, paragraph 14.06.A).
  - 4. List of Uncompleted Work (paragraph 3.01.C).
  - 5. Certification of Partial Substantial Completion (Section 00700, paragraph 14.05.A.1) if Partial Utilization is requested by City.
  - 6. Closeout Documentation:
    - (a) The following items are required to be submitted prior to the Contractor's application for Final Payment as required by Section 00700 – General Conditions, paragraph 14.07:
      - (i) Maintenance and Operating Instructions.
      - (ii) Schedules.
      - (iii) Guarantees.
      - (iv) Bonds.
      - (v) Certificates or other evidence of insurance.
      - (vi) Certificates of inspection.
      - (vii) Record Documents (Section 01020 – Record Documents).
    - (b) The following items are required to be submitted with the Contractor's application for Final Payment as required by Section 00700 – General Conditions, paragraph 14.07:
      - (i) Contractor Affidavit for Final Payment (Section 01290.14).
      - (ii) Subcontractor Affidavit for Final Payment (Section 01290.15).
    - (c) Authorization to Release a Revenue Clearance Letter (Section 00630).
    - (d) All other documentation necessary for an Application for Progress payment (Section 00700, Article 14).
  - 7. Consent of Surety to Make Final Payment certificate.

## PART 2 - PRODUCTS

- A. Not used.

## PART 3 - EXECUTION

### 3.01 ACHIEVEMENT OF FULL OPERATION / SUBSTANTIAL COMPLETION

- A. Refer to Section 00700 – General Conditions, Article 14.
- B. Refer to Section 00800 – (Overflow Control Plan Consent Decree) Supplementary Conditions, paragraph SC-14.04 for additional information to define items of the Work to be included in the definition of Achievement of Full Operation or Substantial Completion.
- C. List of Uncompleted Items: The Contractor shall submit a list of incomplete items that are required for the Work, but not required for Achievement of Full Operations / Substantial Completion. The list shall include a description of the Work, the value of each item, reasons the work is not complete, and a schedule for completion.

- D. The inspection associated with the Achievement of Full Operation / Substantial Completion will be scheduled at a mutually agreed time between the Contractor, Design Professional and the City's Representative.
- E. City will provide a punch list (Section 01290.13) of items that require completion or correction. Items noted on the punch list may not be all-inclusive and the failure to include any items on the list does not alter the responsibility of the Contractor to complete all the Work in accordance with the Contract Documents.
- F. Items identified in the punch list shall be addressed by the Contractor prior to the Final Inspection.

### 3.02 PARTIAL UTILIZATION

- A. Refer to Section 00700 – General Conditions, paragraph 14.05, Partial Utilization.

### 3.03 FINAL INSPECTION

- A. Refer to Section 00700 – General Conditions, paragraph 14.06, Final Inspection.
- B. The Final Inspection will be scheduled at a mutually agreed time between the Contractor, Design Professional and City's Representative.
- C. The City will provide the Contractor with the results of the final inspection.
- D. If the Work is incomplete or unacceptable, the City will advise the Contractor of Work that is incomplete or other obligations that have not been fulfilled but are required for final acceptance. The Contractor shall address items that need to be corrected, and then request a re-inspection of the Work.
- E. Re-inspection of the Work:
  - 1. If necessary, the City will re-inspect the Work upon receipt of notice that the Work, including punch list items from the first inspection, has been completed, except for items whose completion is delayed under circumstances acceptable to the City.
  - 2. If necessary, re-inspections will be repeated until all deficiencies have been remedied by the Contractor.
- A. Approval of the Work by the City or Design Professional will not relieve the Contractor of their responsibility under other terms of the Contract.

### 3.04 FINAL PAYMENT

- A. After Contractor has completed all corrections (after the Final Inspection) to the satisfaction of City, Contractor shall submit the Final Payment request. Refer to Section 00700 – General Conditions, paragraph 14.07, Final Payment.
- B. Documents to be submitted with, or prior to, the application for final payment shall be as required by the Contract Documents. See paragraph 1.06 for a summary.
- C. Authorization to Release a Revenue Clearance Letter: If the Contract exceeds \$160,000 and if Work is performed for a term longer than one (1) year, then in addition to the requirements of Section 00700, the Application for Final Payment shall be accompanied by a clearance letter from the Finance Department, Revenue Division. The Contractor shall keep a copy of all subcontractors' clearance letters in its contract files in accordance with the contract documents. See Section 00630.
- D. For Contracts that include a Green Infrastructure Establishment Period, there will be a Final Payment for the Work associated with construction, and a separate Final Payment for the Work associated with the maintenance of green infrastructure through the establishment period. The Final Payment for Work associated with construction shall exclude the amount for maintenance of green infrastructure indicated in the Schedule of Values.

**3.05 LIQUIDATED DAMAGES**

- A. If required, liquidated damages shall be assessed in accordance with the Contract Documents. Refer to Section 00700 – General Conditions, paragraph 12.01 and Section 00800. See Supplementary Conditions, paragraph SC-12.01 for additional information.

**END OF SECTION**

## SECTION 01914

### EQUIPMENT TESTING AND SYSTEM STARTUP

#### PART 1 - GENERAL

##### 1.01 SUMMARY

- A. This Section includes procedural requirements for the equipment testing and startup of all equipment.
  - 1. The Design-Builder shall furnish all labor, materials, equipment, and incidentals as necessary to comply with these requirements.

##### 1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract; including General and Supplementary Conditions, all applicable Division 1 Sections, and all applicable Division Sections; apply to this Section.
- B. Related Sections include the following:
  - 1. Divisions 2 through 16 Sections for specific requirements for any testing and startup instructions of applicable products in those Sections.

##### 1.03 DEFINITIONS

- A. System: Entire Project, or agreed upon portion, including all of its unit processes.
- B. Functional Test: Test or tests in presence of Design-Builder and owner to demonstrate that installed equipment meets manufacturer's installation, calibration, and adjustment requirements and other requirements as specified.
- C. Performance Test: Test or tests performed after any required functional test in presence of Design-Builder and Owner to demonstrate and confirm individual equipment meet performance requirements specified in individual sections.
- D. Unit Process: As used in this section, a unit process is a portion of the facility that performs a specific process function, such as in Bar Screen.
- E. System Performance Demonstration:
  - 1. A demonstration, conducted by Design-Builder, with assistance of Owner, to demonstrate and document the performance of the entire operating system, both manually and automatically (if required), based on criteria developed in conjunction with Owner and as accepted by Design-Builder.
  - 2. Such demonstration is for the purposes of (i) verifying to Owner entire system performs as a whole, and (ii) documenting performance characteristics of completed system for Owner's records. Neither the demonstration nor evaluation is intended in any way to make performance of a unit process or entire system the responsibility of the Design-Builder, unless such performance is otherwise specified.

## 1.04 SUBMITTALS

### A. Informational submittals:

1. Facility Startup and performance Demonstration Plan, including activities of Equipment Supplier.
2. Functional and performance test results.
3. Completed Unit Process Startup Form for each unit process.
4. Completed System Performance Demonstration/Certification Form.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.01 GENERAL

- A. System Startup Meetings: Schedule, in accordance with requirements of Section 01310, "Project Management and Coordination", to discuss test schedule, test methods, materials, chemicals and liquids required, systems operation interface, and Owner involvement.
- B. Design-Builder's Testing and Startup Representative:
1. Designate and furnish one or more personnel to coordinate and expedite testing and system startup.
  2. Representative(s) shall be present during startup meetings and shall be available at all times during testing and startup.
- C. Provide temporary valves, gauges, piping, test equipment, and other materials and equipment required for testing and startup.
- D. Provide Subcontractor and equipment manufacturers' staff adequate to prevent delays. Schedule ongoing work so as not to interfere with or delay testing and startup.
- E. Owner will:
1. Provide water, power, chemicals, and other items as required for startup, unless otherwise indicated.
  2. Operate process units and system with support of Design-Builder.
  3. Provide labor and materials as required for laboratory analysis.

### 3.02 EQUIPMENT TESTING

#### A. Preparation:

1. Complete installation before testing.
2. Furnish qualified manufacturers' representatives, when required by individual Specification sections.
3. Obtain and submit from equipment manufacturer's representative Manufacturer's Certificate of Proper Installation Form, in accordance with Section 01433, "Manufacturers' Field Services", when required by individual Specification section.

4. Equipment Test Report Form: Provide written test report for each item of equipment to be tested, to include the minimum information.
  - a. Owner/Project Name
  - b. Equipment or item tested.
  - c. Date and time of test
  - d. Type of test performed (Functional or Performance)
  - e. Test method
  - f. Test conditions
  - g. Test results
  - h. Signature spaces for Design-Builder as witness
  
5. Cleaning and checking prior to beginning functional testing:
  - a. Calibrate testing equipment in accordance with manufacturer's instructions.
  - b. Inspect and clean equipment, devices, connected piping, and structures to ensure they are free of foreign material.
  - c. Lubricate equipment in accordance with manufacturer's instructions.
  - d. Turn rotating equipment by hand when possible to confirm that equipment is not bound.
  - e. Open and close valves by hand and operate other devices to check for binding, interference, or improper functioning.
  - f. Check power supply to electric powered equipment for correct voltage.
  - g. Adjust clearances and torque
  - h. Test piping for leaks.
  
6. Ready to test determination will be by Design-Builder based at least on the following:
  - a. Acceptable Operation and Maintenance Data
  - b. Notification by Design-Builder of equipment readiness for testing.
  - c. Receipt of Manufacturer's certificate of Proper Installation by Owner
  - d. Adequate completion of work adjacent to, or interfacing with, equipment to be tested, including items to be furnished by Owner.
  - e. Availability and acceptability of manufacturer's representative, when specified, to assist in testing of respective equipment.
  - f. Satisfactory fulfillment of other specified manufacturer's responsibility.
  - g. Equipment and electrical tagging complete
  - h. Delivery of all space parts and special tools.

B. Functional Testing:

1. Conduct as specified in individual Specification sections.
2. Notify Owner and Design-Builder in writing at least 10 days prior to scheduled date of testing.
3. Prepare Equipment Test report summarizing test method and results.
4. When, in Design-Builder's opinion, equipment meets functional requirements specified, such equipment will be accepted for purposes of advancing to performance testing phase, if so required by individual Specification sections.

Such acceptance will be evidenced by Design-Builder/Owner's signature as witness on Equipment Test Report.

C. Performance Testing:

1. Conduct as specified in individual Specification sections.
2. Notify Design-Builder and Owner in writing at least 10 days prior to scheduled date of test.
3. Performance testing shall not commence until equipment has been accepted by Design-Builder as having satisfied functional test requirements specified.
4. Type of fluid, gas, or solid for testing shall be as specified.
5. Unless otherwise indicated, furnish labor, materials, and supplies for conducting the test and taking samples and performance measurements.
6. Prepare Equipment Test Report summarizing test method and results.
7. When, in Design-Builder's opinion and KCMO Project Manager's opinion, equipment meets performance requirements specified, such equipment will be accepted as to conforming to Contract requirements. Such acceptance will be evidenced by Design-Builder's and KCMO Project Manger's signature on Equipment Test Report.

3.03 STARTUP OF UNIT PROCESSES

- A. Prior to unit process startup, equipment within unit process shall be accepted by Design-Builder and KCMO Project Manager as having met functional and performance testing requirements specified.
- B. Startup sequencing of unit processes shall be chosen by Design-Builder to meet schedule requirements.
- C. Make adjustments, repairs, and corrections necessary to complete unit process startup.
- D. Startup shall be considered complete when, in the opinions of the Design-Builder and the KCMO Project Manager, unit process has operated in manner intended for 5 continuous days without significant interruption. This period is in addition to functional or performance test periods specified elsewhere.
- E. Significant Interruption: May include any of the following events:
  1. Failure of Design-Builder to provide and maintain qualified onsite startup personnel as scheduled.
  2. Failure to meet specified functional operation for more than 2 consecutive hours.
  3. Failure of any critical equipment or unit process that is not satisfactorily corrected within 5 hours after failure.
  4. Failure of any non critical equipment or unit process that is not satisfactorily corrected within 8 hours after failure.
  5. As determined by Design-Builder.
- F. A significant interruption will require startup then in progress to be stopped. After corrections are made, startup test period to start from beginning again.



### 3.04 FACILITY PERFORMANCE DEMONSTATION

- A. When, in the opinions of the Design-Builder and KCMO Project Manager, startup of all unit processes has been achieved, sequence each unit process to the point that system is operational.
- B. Demonstrate proper operation of required interfaces within and between individual unit processes, including their monitoring and control systems.
- C. After system is operating, complete performance testing of equipment and systems not previously tested.
- D. Document, as defined in System Startup and Performance Demonstration Plan, the performance of the System including monitoring and control system.
- E. Certify, on the System Performance Demonstration /Certification Form, that system is capable of performing its intended function(s), including fully automatic and computerized operation.

### 3.05 SUPPLEMENTS

- A. Supplements listed below, following “End of Section”, are part of this Specification.
  - 1. Unit Process Startup Form
  - 2. System Performance Demonstration/Certification Form

END OF SECTION

# UNIT PROCESS STARTUP FORM

OWNER: \_\_\_\_\_ PROJECT: \_\_\_\_\_

Unit Process Description: (Include description and equipment number of all equipment and devices)

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Startup Procedure (Describe procedure for sequential startup and evaluation, including valves to be opened/closed, order of equipment startup, etc.):

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Startup Requirements (Water, Power, Chemicals, etc.)

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Evaluation Comments:

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# SYSTEM PERFORMANCE DEMONSTRATION/CERTIFICATION FORM

OWNER: \_\_\_\_\_ PROJECT: \_\_\_\_\_

Unit Process Description: (List unit processes involved in system startup)

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Unit Processes Startup sequence (Describe sequence for startup, including computerized operations, if any):

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Certifications that System is capable of performing its intended function(s), including full automatic operation:

Design-Builder: \_\_\_\_\_ Date: \_\_\_\_\_, 20\_\_

KCMO Project Manager: \_\_\_\_\_ Date: \_\_\_\_\_, 20\_\_

## SECTION 02084

### DISPOSAL OF REGULATED ASBESTOS-CONTAINING MATERIAL

#### PART 1 GENERAL

##### 1.01 SUMMARY

- A. This section describes the disposal of Regulated Asbestos-Containing Materials (RACM). Disposal includes packaging of RACM. Disposal may be accomplished either by land filling or converting RACM to non-Asbestos waste.
- B. Comply with these specifications and all applicable federal, state, or local regulations.
- C. Applicable federal, state, and local regulations take precedence.
- D. Coordinate all activities with Kansas City Missouri Air Quality Division (Health Department) as necessary.
- E. Obtain all necessary permits for disposal of asbestos-containing materials (ACM). The costs of the necessary permits are to the account of the Design-Builder or sub-contractor.
- F. The Design-Builder shall furnish all labor, materials, equipment, and incidentals as necessary to comply with these requirements.

##### 1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all applicable Division Sections, apply to this section.
- B. Asbestos Abatement Related Documents:
  - 1. Section 01354 – Hazardous Material Procedures
  - 2. Section 01565 -Worker Protection – Asbestos Abatement
  - 2. Asbestos Assessments – See Appendix A

##### 1.03 SUBMITTALS

- A. Submit the following to the City for review. Do not start work until these submittals are returned with City action stamp indicating that the submittal is returned for unrestricted use.
  - 1. Copy of state or local license for waste hauler.
  - 2. Name and address of landfill where RACM are to be disposed. Include contact person and telephone number.
  - 3. Chain of Custody form and form of waste manifest proposed
  - 4. Sample of disposal bag and any added labels to be used.
- B. On a weekly basis submit copies of all manifests and disposal site receipts to City Project Manager.
- C. Waste Shipment Record: Maintain a waste shipment record as required by the NESHAP regulation which indicates the waste generator, transporter, and disposal site, and which describes the nature, size, type of container, and form of asbestos waste. Submit to City Project Manager within 35 days of post-shipment.

## PART 2 PRODUCTS

### 2.01 MATERIALS

A. Provide 6 mil (0.15 mm) thick leak-tight polyethylene bags labeled with three labels with text as follows:

1. First Label: Provide in accordance with 29 CFR 1910.1200(f) of OSHA's Hazard Communication standard:

DANGER  
CONTAINS ASBESTOS FIBERS  
AVOID CREATING DUST  
CANCER AND LUNG DISEASE HAZARD  
BREATHING AIRBORNE FIBERS IS  
HAZARDOUS TO YOUR HEALTH

2. Second Label: Provide in accordance with U. S. Department of Transportation regulation on hazardous waste marking. 49 CFR parts 171 and 172. Hazardous Substances

RQ-ASBESTOS WASTE  
CLASS 9  
NA2212-PG III

3. Third Label: Provide the name of the waste generator (Owner's name), the location from which the waste was generated and the names and addresses of the Design-Builder and transporter. This label must be durable, able to repel dirt and moisture (e.g., permanent marker). Label must be placed directly on disposal bag(s) in a legible format. **Peel and stick type labels are expressly prohibited.**

## PART 3 EXECUTION

### 3.01 SEQUENCE

A. Comply with the following sections during all phases of this work:

1. Section 01565 Worker Protection - Asbestos Abatement

### 3.02 GENERAL

- A. All waste is to be hauled by a waste hauler with all required licenses from all state and local authority with jurisdiction.
- B. Mix all liquid asbestos containing waste or asbestos contaminated waste with a bladeable material so that it forms a bladeable (non-liquid) form, and have the concurrence of the landfill operator prior to disposal.
- C. Load all adequately wetted RACM in disposal bags or leak-tight containers. All materials are to be contained in one of the following

1. Two 6 mil disposal bags or
  2. Two 6 mil disposal bags and a fiberboard drum or
  3. Sealed steel drum with no bag
- D. Protect interior of truck or dumpster with Critical and Primary Barriers as required by authorities having jurisdiction.
- E. Carefully load containerized waste in fully enclosed dumpsters, trucks or other appropriate vehicles for transport. Exercise care before and during transport, to insure that no unauthorized persons have access to the material.
- F. Warning Signs: During loading and unloading mark dumpsters, receptacles and vehicles with a sign complying with requirements of the EPA NESHAP regulation (40 CFR Part 61), in a manner and location that a person can read the following legend:

DANGER  
ASBESTOS DUST HAZARD  
CANCER AND LUNG DISEASE HAZARD  
Authorized Personnel Only

- G. Do not store containerized materials outside of the Work Area. Take containers from the Work Area directly to a sealed truck or dumpster.
- H. Do not transport disposal bagged materials on open trucks. Label drums with same warning labels as bags. Uncontaminated drums may be reused. Treat drums that have been contaminated as RACM and dispose of in accordance with this specification.
- I. Advise the landfill operator or processor, at least ten days in advance of transport, of the quantity of material to be delivered.
- J. At disposal site unload containerized waste:
1. At a disposal site, sealed plastic bags may be carefully unloaded from the truck. If bags are broken or damaged, return to work site for re-bagging. Clean entire truck and contents using procedures set forth under Project Decontamination.
- K. Retain receipts from landfill or processor for materials disposed of.
- L. At completion of hauling and disposal of each load submit copy of waste manifest, chain of custody form, and landfill receipt to City Project Manager.

END OF SECTION

## SECTION 02312

### CONTROLLED LOW STRENGTH MATERIAL (CLSM)

#### PART 1 GENERAL

##### 1.01 SUMMARY

- A. Section includes: Controlled low strength material (CLSM), also known as “flowable fill” for use in the Grit House Duct Banks.

##### 1.02 REFERENCES

- A. American Concrete Institute (ACI):
  1. 229R - Report on Controlled Low-Strength Materials.
  2. 301 - Specifications for Structural Concrete.
- B. ASTM International (ASTM):
  1. C94 - Standard Specification for Ready Mix Concrete.
  2. C143 - Standard Test Method for Slump of Hydraulic Cement Concrete.
  3. C150 - Standard Specification for Portland Cement.
  4. C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
  5. C494 - Standard Specification for Chemical Admixtures for Concrete.
  6. C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
  7. D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup>(2,700 kN-m/m<sup>3</sup>)).
  8. D4832 - Standard Test Method of Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders.
  9. D5971 - Standard Practice for Sampling Freshly Mixed Controlled Low Strength Material.
  10. D6023 - Standard Test Method for Density (Unit Weight), Yield, Cement Content, and Air Content (Gravimetric) of Controlled Low-Strength Material.

##### 1.03 SYSTEM DESCRIPTION

- A. Mixture of portland cement, water, pozzolan, fine aggregate and admixtures, proportioned in accordance with the recommendations of ACI 229 to produce a homogeneous mixture that is flowable, that will readily work into corners and angles; that will not segregate in the plastic state; that is self-compacting at the time of placement without the use of mechanical vibration; and that will not damage existing equipment.
- B. Performance requirements:
  1. Air content, total calculated in accordance with ASTM D6023: Not less than

- 8.0 percent, nor greater than 12.0 percent.
2. Compressive strength, measured in accordance with ASTM D4832 at 28 days: Not less than 50 pounds per square inch, nor greater than 150 pounds per square inch.
3. Wet density: Not greater than 132 pounds per cubic foot.
4. Slump, measured in accordance with ASTM C143 at the point of placement: Greater than 9 inches and that allows CLSM to flow freely and to be self-compacting during placement.

#### **1.04 SUBMITTALS**

- A. Product data: Submit data completely describing materials in the mix and demonstrating compliance with the requirements of this Section.
  1. Cement: Mill tests. Indicate alkali content representative of each shipment.
  2. Fly ash: Identify source and type of fly ash.
  3. Water: Identify source and quality if not from a municipal treatment source.
  4. Admixtures: Manufacturer's product data indicating suitability for use in CLSM mixes and recommended dosage rates.
  5. Aggregate:
    - a. Submit source, type, and sieve analyses.
    - b. Resubmit at any time there is a significant change in grading of materials.
- B. Mix design:
  1. Submit full details, including mix design calculations for mix proposed for use.
  2. Trial batch test data:
    - a. Submit data for each test cylinder.
    - b. Submit data that identifies mix and slump for each test cylinder.

#### **1.05 DELIVERY, STORAGE AND HANDLING**

- A. Store or stockpile cement, fly ash, and aggregate in accordance with ACI 301.
- B. Store admixtures in accordance with the manufacturer's recommendations.

### **PART 2 PRODUCTS**

#### **2.01 MATERIALS**

- A. Cement:
  1. Portland cement in accordance with ASTM C150, Type II.
  2. Having total alkali content not more than 0.60 percent.



- B. Fly ash: Class C or Class F fly ash in accordance with ASTM C618.
- C. Water:
  - 1. Potable water: Clean and free from oil and deleterious amounts of alkali, acid, organic matter, or other substances.
- D. Admixtures: Products of a single manufacturer, specifically manufactured or recommended by that manufacturer for use in CLSM.
  - 1. Air entraining admixture: In accordance with ASTM C260.
  - 2. Water reducing admixture: In accordance with ASTM C494, Type A.
- E. Aggregate:
  - 1. Non-expansive, non-reactive, inert natural sand conforming to the following requirements:
    - a. Not more than 12 percent passing a No. 200 sieve.
    - b. No plastic fines present.
    - c. Including pea gravel no larger than 3/8 inch.

## **2.02 MIXES**

- A. See System Description for performance requirements of the plastic and hardened mix.

## **2.03 SOURCE QUALITY CONTROL**

- A. Trial batch:
  - 1. After mix design has been accepted by Owner, have trial batch of the accepted mix design prepared by testing laboratory acceptable to Owner.
  - 2. Prepare trial batches using the specific cement, fly ash, admixtures, aggregates, and water proposed for the Work.
  - 3. Prepare trial batch with quantity sufficient to determine slump, workability, and consistency; and to provide test cylinders as indicated in this Section.
- B. Trial batch testing:
  - 1. Determine slump in accordance with ASTM C143, with the following modifications:
    - a. Do not rod the concrete material.
    - b. Place material in slump cone in one semi-continuous filling operation, slightly overfill, tap lightly, strike off, and then measure and record slump.
  - 2. Prepare and test trial batch specimens in accordance with ASTM D4832, with the following modifications:
    - a. Provide cylindrical test specimens, each 6-inches in diameter by 12-inch high.
    - b. Provide a minimum of 8 cylinders for testing of each trial batch.

- c. Fill the molds to overflowing and tap sides lightly to settle the mix.
  - d. Do not rod the mix for consolidation in the cylinder.
  - e. Strike off the excess material.
- 3. Place test cylinders in a moist curing room. Exercise caution in moving and transporting the cylinders since they are fragile and will withstand only minimal bumping, banging, or jolting without damage.
- 4. Do not remove the test cylinder from mold until that cylinder is to be capped and tested.
  - a. Perform the capping carefully to prevent premature fractures.
  - b. Do not perform initial compression test until the cylinders reach a minimum age of 3 days.
- 5. Provide compressive strength tests:
  - a. Test 4 test cylinders at 7 days after casting, and another 4 cylinders at 28 days after casting.
  - b. The compression strength of the 4 test cylinders tested at 28 days shall be equal to or greater than the minimum required compression strength, but shall not exceed maximum compression strength.
- B. If the trial batch tests do not meet the Specifications for strength or density, revise and re-submit the mix design, prepare additional trial batch (es), and complete additional trial batch tests. Repeat until an acceptable trial batch is that conforms to the Specifications is produced.
  - 1. All the trial batches and acceptability of materials shall be paid by the Contractor.
  - 2. After acceptance, do not change the mix design without submitting a new mix design, trial batches, and test information.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Do not place CLSM surfaces receiving the fill have been prepared according to all applicable standards and Manufacturer and Supplier recommendations.
- B. Remove debris foreign matter, and standing or running water from excavations and areas receiving CLSM before placement.

### **3.02 INSTALLATION**

- A. Duct Banks.
  - 1. Install CLSM in Grit House Duct Banks identified by City during preconstruction conference as outlined in Section 01000.
  - 2. Where CLSM is placed around and over pipes, secure pipes in place, or place CLSM in lifts to prevent pipe flotation.

### **3.03 MEASURING, BATCHING, MIXING AND TRANSPORTING**

- A. Measure, batch, mix and transport CLSM in accordance with the requirements of ASTM C94 and this Section.
- B. Mix until there is uniform distribution of materials.
- C. Discharge mixer completely prior to recharging.
- D. After trial batch testing and mix acceptance, maintain slump during construction within plus or minus 1 inch of the design slump.

### **3.04 PLACING**

- A. Place controlled low strength material by method that preserves the quality of the material in terms of compressive strength and density.
- B. Maintain fluid properties of the mix during placement.
  - 1. At point of placement, provide material that flows easily around, beneath, or through walls, pipes, conduits, or other structures.
  - 2. Do not place CLSM that has partially hardened or that has been contaminated by foreign materials.
  - 3. Handle and place CLSM using methods that minimize segregation of the mix.
  - 4. Deposit mix as near its final position as possible to avoid segregation due to rehandling or flowing.
  - 5. Contain and confine mix while it is fluid. Design containment structures and bracing at walls and forms to withstand lateral pressures of wet mix.
- C. Lifts:
  - 1. Limit lift heights of CLSM placed against structures and other facilities that could be damaged due to the pressure from the CLSM, to the lesser of 3 feet or the lift height indicated on the Drawings.
  - 2. Do not place another lift of CLSM until the last lift of CLSM has set and gained sufficient strength to prevent additional lateral load against the forms or structure due to the weight of the next lift of CLSM.
- D. Water conditions:
  - 1. Do not place CLSM in standing or flowing water.
  - 2. Do not permit water to flow over the surface of freshly placed or un-hardened CLSM.
  - 3. Do not submerge CLSM in water within 24 hours after placement.
- E. Manage CLSM bleed water.
  - 1. Grade top surface of CLSM to drain away from the fill.
  - 2. Provide side containment that permits bleed water to drain to a contained management area away from the fill.

### **3.05 CURING AND PROTECTION**

- A. Curing:
  - 1. Prior to and during curing, install barriers to prevent equipment or personnel from falling into or becoming entrapped in CLSM.
- B. Protection:
  - 1. CLSM will not damage existing equipment.
  - 2. Protect existing facilities and CLSM from damage from the elements.
  - 3. Protect existing facilities and CLSM of any nature during surrounding construction operations.
  - 4. Freezing: Do not use salt, manure, or other chemicals to provide cold.

### **3.06 FIELD QUALITY CONTROL**

- A. Provide quality control over the Work of this Section as specified in Section 01000 and 01300 and as specified in this Section.
- B. General:
  - 1. Owner inspection and acceptance required prior to placement.
  - 2. Make provisions for and furnish all material for the test specimens, and provide manual assistance to assist the Owner's Testing Laboratory in preparing said specimens.

### **3.07 FIELD QUALITY ASSURANCE**

- A. Provide quality control over the work of this Section as specified in Section 01450 - Quality Control and 01460 - Contractor Quality Control Plan.
- B. Field inspections:
  - 1. Engineer shall provide on-site inspection for the Work of this Section.
  - 2. Advise Engineer of readiness to proceed at least 24 hours prior to each placement of CLSM.
  - 3. Required inspections:
    - a. Engineer will observe the prepared areas. Do not place CLSM until Engineer has observed and accepted preparations.
  - 4. Record of inspections.
- C. Field sampling and testing:
  - 1. During construction, Owner shall provide sampling and testing to determine whether the CLSM, as produced and placed, complies with the requirements specified.
    - a. Make provisions for and furnish material for test specimens. Cooperate by allowing free access for Owner's independent testing firm to sample and test materials. Provide assistance in obtaining and preparing said specimens.
  - 2. Sample CLSM for testing in accordance with ASTM D5971.
  - 3. Required tests:

- a. Air content: Prepare sample and test in accordance with ASTM D6023
- b. Compressive strength: Prepare and test cylinder specimens in accordance with ASTM D4832.
  - 1) Prepare 6-inch diameter by 12-inch high specimens for testing.
    - a) Provide one set of specimens for each 150 cubic yards of CLSM placed, but not less than 1 set for each half day's placement.
    - b) Prepare and test not less than 3 cylinders for each set.
    - c) Place CLSM in the molds in accordance with ASTM D4832. Do not rod or otherwise consolidate the material in the mold.
    - d) In accordance with ASTM D4832 recommendations for displacing bleed water at the top of the molds and refilling the molds before covering with a lid. Do not use air-tight lids.
  - 2) Place the cylinders in a safe location away from construction activities.
    - a) Protect cylinders from bumping and impact.
    - b) Maintain temperature surrounding cylinders between 60 and 80 degrees Fahrenheit until delivery to the laboratory for testing.
    - c) After the first day, surround molds with a high humidity environment by covering with wet burlap, or equivalent highly absorptive material. Maintain saturation of the cover. Do not sprinkle water directly on the cylinders.
  - 3) After 4 days, place the cylinders in a protective container for transport to the laboratory for testing.
    - a) Exercise caution in moving and transporting the cylinders since they are fragile and will withstand only minimal bumping, banging, or jolting without damage.
    - b) Transport container may be a box with a Styrofoam or similar lining that will limit jarring and bumping of the cylinders.
  - 4) Upon receipt at the testing laboratory, place test cylinders in a moist curing room until dates for testing.
  - 5) Do not remove test cylinders from molds until the day that cylinders is to be capped and tested.
  - 6) Cap and test for compressive strength in accordance with ASTM D4832.
    - a) Do not perform initial compression test until the cylinders reach an age of at least 4 days.
    - b) Test 1 cylinder at 7 days and 2 at 28 days.
      - 7) Compressive strength of the cylinders tested at 28 days shall be equal to or greater than the minimum required compression strength, but shall not exceed maximum compression strength specified.

### **3.08 NON-CONFORMING WORK**

- A. When testing or observation indicates CLSM with properties outside the specified and accepted range, Engineer will issue instructions regarding disposition of nonconforming materials.
- B. Engineer may:
  - 1. Reject CLSM represented by those test specimens and require its removal and replacement.
  - 2. Require modification of the mix design to provide CLSM with the properties specified.
- C. Make such modifications at no additional expense to the Owner and with no adjustment to the schedule.

END OF SECTION

## SECTION 02620 – DUCTILE IRON PIPE FOR SEWERS

### PART 1 - GENERAL

#### 1.01 SUMMARY

- A. This section covers materials and installation of pipe, fittings and relevant appurtenances associated with the installation of ductile iron pipe sewers. This section applies to all sewer mains 54 inches in diameter and smaller. This section also applies when diameters larger than 54 inches is specified for the project.
- B. This section also includes Shop Coatings, Linings, Bolts, Nuts, Polyethylene Encasement and other Protective Coatings.

#### 1.02 SPECIFICATION MODIFICATIONS

- A. It is understood that throughout this section these Specifications may be modified by appropriate items in Section 01015 – Specific Project Requirements or as otherwise indicated on the Contract Drawings.

#### 1.03 RELATED SECTIONS

- A. Section 01000 – General Project Requirements.
- B. Section 01015 – Specific Project Requirements.
- C. Section 01300 – Submittals.
- D. Section 02200 – Earthwork.
- E. Section 02250 – Trenching, Pipe Embedment and Backfill.
- F. Section 02669 – Thrust Restraints.

#### 1.04 CODES AND STANDARDS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.
- B. American Society for Testing and Materials (ASTM):
  - ASTM A276 Standard Specification for Stainless Steel Bars and Shapes
  - ASTM A307 Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile
  - ASTM A746 Standard Specification for Ductile Iron Gravity Sewer Pipe
  - ASTM D4976 Standard Specification for Polyethylene Tubing.
- C. American National Standards Institute (ANSI):
  - ANSI B18.2.2 Nuts for General Applications: Machine Screw Nuts, Hex, Square, Hex Flange, and Coupling Nuts (Inch Series).
- D. American Water Works Associations (AWWA):
  - AWWA C105/ANSI A21.5 Polyethylene Encasement for Ductile Iron Piping
  - AWWA C110/ANSI A21.10 Gray-Iron and Ductile Iron Fittings
  - AWWA C111/ANSI A21.11 Rubber-Gasket Joints for Cast Iron and Ductile Iron Pressure Pipe and Fittings
  - AWWA C115/ANSI A21.15 Flanged Ductile-Iron Pipe with Ductile Iron or Gray Iron Thread
  - AWWA C150/ANSI A21.50 Standard for the Thickness Design of Ductile Iron Pipe
  - AWWA C151/ANSI A21.51 Ductile Iron Pipe Centrifugally Cast for Water
  - AWWA C153/ANSI A21.53 Ductile-Iron Compact Fittings, 3 in. through 24 in.

- |           |   |
|-----------|---|
| AWWA C203 | Standards for Steel Pipe  |
| AWWA C550 | Protective Epoxy Interior Coatings for Valves and Hydrants        |
| AWWA C600 | Installation of Ductile Iron Water Mains and their Appurtenances. |
- E. International Organization for Standardization (ISO):
- |            |  |
|------------|--|
| ISO 8179-1 | Ductile Iron Pipes, Fitting, Accessories and their Joints – Zinc-Bases Coating – Part 1: Metallic Zinc with Finishing Layer. |
|------------|--|

1.05 INFORMATION PROVIDED BY THE CITY

- A. As provided in the Contract Documents.

1.06 SUBMITTALS

- A. Submit as specified in Section 01300 – Submittals.
- B. Shop Drawings:
1. Submit shop drawings and project data (laying schedule) for piping work showing pipe and fitting sizes, valve locations, joint details; and hydrant locations.
- C. Product Data:
1. Pipe Data. In accordance with paragraph QUALITY ASSURANCE.
  2. Test Data. In accordance with paragraph QUALITY ASSURANCE.
  3. Polyethylene Encasement.
  4. Push On Joints.
  5. Mechanical Joints.
  6. Flanged Joints.
  7. Appurtenances:
    - (a) Tie rods.
    - (b) Couplings.
  8. Interior Coatings.
  9. Exterior Coatings.
  10. Bolts and Nuts.
  11. Polyethylene Encasement.
- D. Other Submittals:
1. Manufacturer’s Experience. In accordance with paragraph QUALITY ASSURANCE.

1.07 QUALITY ASSURANCE

- A. Follow provisions of AWWA C600.
- B. Manufacturer’s Experience. The manufacturer shall be a company specializing in manufacturing the Products specified in this section with minimum three years documented experience. Submit manufacturer’s experience in accordance with paragraph SUBMITTALS.
- C. Mark rejected or defective materials and remove them from the work site.
- D. The Contractor shall submit to the City written evidence of the following:
1. Pipe Product Data. That the pipe furnished under this specification is in conformance with the material and mechanical requirements specified herein.
  2. Test Data. Certified copies of independent laboratory test results or mill test results from the pipe supplier may be considered evidence of compliance provided such tests are performed in accordance with the appropriate ASTM or AWWA testing standards by experienced, competent personnel. Pipe manufacturer’s test results shall be stamped by a licensed Professional Engineer (PE) employed by the pipe manufacturer. In case of doubt



as to the accuracy or adequacy of mill tests, the City may require that the Contractor furnish test reports from an independent testing laboratory on samples of pipe materials.

- E. The City will inspect all pipe, fittings, and accessories delivered to the site for damage, cleanliness, and conformance to the specifications. No damaged, broken, cracked, deformed, mishandled, imperfectly coated, defective pipe or fittings shall be used. At the sole discretion of the City and at no additional cost to the City, items that are not acceptable shall either be repaired or completely removed from the site.

#### 1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Follow the provisions for the delivery, storage, protection and handling products to and at site provided in Section 01000 – General Project Requirements, paragraph PRODUCT DELIVERY, STORAGE AND HANDLING.
- B. Pipe, fittings, and accessories shall be handled in a manner that will ensure installation in a sound, undamaged condition. Equipment, tools, and methods used in unloading, reloading, hauling, and laying pipe and fittings shall be such that the pipe, pipe coating, and fittings are not damaged. Hooks shall not be used.
- C. Under no circumstances shall pipe or accessories be dropped or dumped.
- D. Pipe and fittings shall not be moved by inserting anything into pipe ends.
- E. Pipe and fittings on which the lining has been damaged shall be replaced at no additional cost to the City.
- F. Where the damaged areas are small and readily accessible, the lining may be permitted to be repaired in accordance with the lining manufacturer’s recommendations at no additional cost to the City.

#### 1.09 ADDITIONAL COMPLIANCE SUBMITTALS

- A. Additional requirements for compliance submittals will be found in Section 01015 – Specific Project Requirements.

### PART 2 - PRODUCTS

#### 2.01 DUCTILE IRON PIPE

- A. Ductile iron pipe shall be designed and manufactured in accordance with AWWA C151/A21.51.
- B. All pipe shall be manufactured from at least 90% recycled ferrous scrap material.
- C. Pipe Thickness:
  - 1. Pipe thickness shall be in accordance with AWWA C150/ANSI A21.50. The following minimum thickness shall apply:
    - (a) Pipe 4 inches through 12 inches in diameter: Class 52.
    - (b) Pipe 16 inches through 54 inches diameter: Class 54.
  - 2. Pipe thickness classifications shall be as noted on the Drawings.
- D. Exterior Coating:
  - 1. The exterior of ductile iron pipe (not including fittings) shall be coated with a layer of arc-sprayed zinc conforming to ISO 8179-1.
  - 2. The mass of the zinc applied shall be 200 g/m<sup>2</sup> of pipe surface area.
  - 3. A finishing layer topcoat shall be applied to the zinc.
  - 4. The mean dry film thickness of the finishing layer shall not be less than 3 mils with a local minimum not less than 2 mils.
  - 5. The manufacturer shall clearly mark the outside of each pipe indicating the pipe has been coated in accordance with these specifications.

- E. Interior Coating/Lining:
  - 1. All pipe shall be lined with TNEMEC Series 431 Perma-Sheild ® PL.

## 2.02 PUSH ON JOINTS

- A. Pipe joints shall be of the push-on type unless otherwise specified or as shown on the Drawings.
- B. Joints shall conform to ANSI/AWWA C111/A21.11.
- C. Gaskets shall be neoprene or synthetic rubber. Gaskets shall be certified as suitable for wastewater use. Natural rubber will not be acceptable.
- D. Restrained Joints. See Section 02669 – Thrust Restraints.

## 2.03 TESTING

- A. All pipe shall be tested and documented per AWWA C151 and paragraph 1.07 D.2 defined herein.
- B. All pipe 30” and larger shall also be hydrostatically tested to 75% of the yield strength of the metal based on the nominal thickness of the pipe.

## 2.04 FITTINGS

- A. All fittings shall be made of Ductile Iron and manufactured according to AWWA C110/ANSI A21.10 or AWWA C153/ANSI A21.53.
- B. Fitting joints shall be Mechanical Joint (MJ), Flange Joint (FLG), or Push-On Joint, per AWWA C111/ANSI A21.11. All MJ glands shall be ductile iron. Fittings shall have distinctly cast upon them, the pressure rating and the letters “DI” or “Ductile”. FLG Fittings shall be used only for aboveground installations.
- C. Flanged Joints: Shall be provided with full-face gaskets and shall meet the requirements of AWWA C115/ANSI A21.15.
- D. The exterior of fittings shall be coated with a layer of arc-sprayed zinc conforming to ISO 8179-1 or a zinc-rich primer conforming to ISO 8179-2. A finishing layer topcoat shall be applied to the zinc.
- E. All fittings shall be interior coated/lined with TNEMEC Series 431 Perma-Sheild ® PL.

## 2.05 GLANDS AND OTHER APPURTENANCES

- A. All glands shall have a polyester triglycidyl isocyanurate (TGIC) powder coating or an approved equal applied for corrosion protection. See also Section 02669 – Thrust Restraints.
- B. Tie Rods shall be ASTM A276, Type 304 or Type 316 Stainless Steel.
- C. Couplings (when approved for use by the City) shall be:
  - 1. Dresser “Style 38”.
  - 2. Smith-Blair “441 or 411 Flexible Coupling”; without pipe stop.
  - 3. Bolted compression type couplings shall be manufactured of epoxy coated steel or ductile iron specifically for use with ductile iron pipe.

## 2.06 TEE-BOLTS AND NUTS

- A. Tee-Bolts shall be manufactured with high-strength, low-alloy steel in accordance with AWWA C111 and ASTM A307, with chamfered or rounded ends projecting 1/4 to 1/2 inch from surface.
- B. Nuts shall be hexagonal manufactured in accordance with ASTM A307 and ANSI B18.2.2.
- C. Provide ceramic-filled, baked-on, fluorocarbon resin coating for tee-bolts and nuts.
- D. Include factory-applied lubricant that produces a low coefficient of friction for the ease of installation.

2.07 MARKINGS

A. Markings shall be legibly cast in the pipe or painted thereon with waterproof paint.

2.08 POLYETHYLENE ENCASEMENT

A. Polyethylene encasement materials shall be in accordance with ASTM D4976 and AWWA C105/ANSI A21.5.

B. The Contractor may use either Linear Low Density (LLD), High Density Cross Laminated (HDCL) or V-Bio<sup>®</sup> Enhanced Polyethylene film with the minimum properties indicated in Table 1 below:

<b>Table 1. Minimum Requirements for Polyethylene Encasement</b>			
<b>Item</b>	<b>LLD</b>	<b>HDCL</b>	<b>V-Bio<sup>®</sup></b>
Thickness, mil	12	4	8
Tensile Strength, psi	4,400	6,300	3,600
Elongation, percent	1,000	100	700
Dielectric Strength, v/mil	1,900	800	800
Tear Resistance, gf	4,400	250	2,550
Impact Resistance, g	1,100	800	600

C. Polyethylene encasement shall be provided in tubes. Sheeting is not allowed. The minimum tube size for each pipe diameter shall be in accordance with Table 2.

**Table 2. Polyethylene Flat Tube Width (inches)**

<b>Nominal Pipe Diameter (inches)</b>	<b>Push-on Bell &amp; Spigot Joints</b>	<b>Mechanical Joints</b>
4	14	16
6	17	20
8	21	24
10	25	27
12	29	30
14	33	34
16	37	37
18	41	41
20	45	45
24	53	53
30	67	67
36	81	81
42	81	81

**Table 2. Polyethylene Flat Tube Width (inches)**

Nominal Pipe Diameter (inches)	Push-on Bell & Spigot Joints	Mechanical Joints
48	95	95
54	108	108

- D. Color: The color of polyethylene encasement shall be green.
- E. Adhesive Tape: Adhesive tape shall be a general purpose adhesive tape 1-inch wide and approximately 8 mils thick, such as Scotch Tape No. 50, Polyken No. 900, Tape coat CT or approved equal (duct tape is not allowed).
- F. Sheeting is permitted for use on point repairs under 12 foot in length. All point repairs 12 foot and longer shall use tubing.

**PART 3 - EXECUTION**

**3.01 INSPECTION**

- A. Pipe and fittings shall be carefully examined for cracks and other defects immediately before installation.
- B. Spigot ends shall be examined with particular care since they are vulnerable to damage from handling.
- C. All defective, damaged, or unsound pipe or fittings shall be rejected and marked as such and removed from the Site.

**3.02 PREPARATION**

- A. Cutting Pipe:
  - 1. Cutting shall be done in a neat manner without damage to the pipe or the cement lining. Cuts shall be smooth, straight, and at right angles to the pipe axis.
  - 2. After cutting, the end of the pipe shall be dressed with a file to remove all roughness and sharp corners.
  - 3. Cutting of pipe with a torch will not be permitted.
- B. Cleaning:
  - 1. The interior of all pipe and fittings shall be thoroughly cleaned of foreign matter before being installed and shall be kept clean until the work has been accepted.
  - 2. Surfaces shall be wire brushed, if necessary, wiped clean, and kept clean until jointing is completed.

**3.03 LAYING PIPE**

- A. Runs intended to be straight shall be laid straight.
- B. Deflections from a straight line or grade shall not exceed the maximum joint deflections for full length pipe as stipulated in AWWA C600. Shorter pipe sections or special bends shall be installed where the alignment or grade requires them.
- C. Pipe shall be protected from lateral displacement by pipe embedment material installed as specified in Section 02250 – Trenching, Pipe Embedment and Backfill.
- D. Under no circumstances shall the pipe be laid in water; and no pipe shall be laid in unsuitable trench conditions.

- E. Pipe shall be laid with the bell ends facing the direction of laying except when reverse laying is specifically authorized by the City.
- F. Whenever pipe laying is stopped, the open end of the line shall be sealed with a watertight plug that will prevent groundwater and other debris from entering the pipe.
- G. No pipe length less than 18 inches in length shall be used.

### 3.04 MECHANICAL JOINTS

- A. After proper joint cleaning, the gasket and gland shall be in position on the spigot before shoving the pipe to its final position. Center the entering spigot so that the gland or follower ring is parallel to the face of the connecting bell.
- B. Joint shall be shoved "home" and the gland properly positioned with respect to the connecting bell with the connecting pipes in as nearly perfect alignment as practicable.
- C. The bolts shall be slightly and uniformly tightened.
- D. Deflection may be made after the bolts are tightened.
- E. Coat the gasket with a lubricant supplied by the pipe manufacturer and all surfaces of the bell, spigot, and gland that will come in contact with the gasket at any time during assembly.
- F. Gasket shall be carefully pushed into position and evenly seated in the bell. The gland shall be shoved into place against the gasket, the bolts inserted, and the nuts tightened with the fingers until snug. Final tightening of the bolts shall be done with a ratchet torque wrench.
- G. Partially tighten the bottom bolt, then the top bolts, alternately either side, and finally the remaining bolts, alternately tightening bolts 180 degrees apart. This cycle is then to be repeated until all bolts are tightened to the torque specified by the manufacturer:

5/8" bolts --- 40 to 60-foot pounds

3/4" bolts --- 60 to 90-foot pounds

- H. If sealing is not maintained at the torque specified, the joint shall be disassembled, thoroughly cleaned, and reassembled. Overstressing of bolts to compensate for poor installation practice will not be permitted.

### 3.05 PUSH-ON JOINTS

- A. Wipe the gasket seat clean with a cloth and position in place. Coat the gasket with a lubricant supplied by the pipe manufacturer. Apply to all of the inner surface of the gasket that will come into contact with the entering pipe.
- B. Clean the plain end of the pipe and apply a thin film of lubricant to the outside of the plain end of the pipe and its beveled edge. Align the plain end of the pipe with the bell of the pipe to which it is to be joined. The joint deflection angle should not exceed the recommended maximum of the manufacturer.
- C. Bring the plain end of the pipe in contact with the gasket and exert sufficient force on the entering pipe so that its plain end compresses the gasket and makes contact with the base of the socket of the bell. This force can be applied by means of a jack type tool, backhoe, or other methods approved by the City.

### 3.06 FLANGED JOINTS

- A. When bolting, care shall be taken to provide uniform gasket compression and prevent unnecessary stress on the flanges. Flange shall be free to move in any direction while the flange bolts are being tightened. Bolts shall be tightened gradually and at a uniform rate to provide uniform gasket compression.
- B. Use full-face gaskets only.

### 3.07 RESTRAINED JOINTS

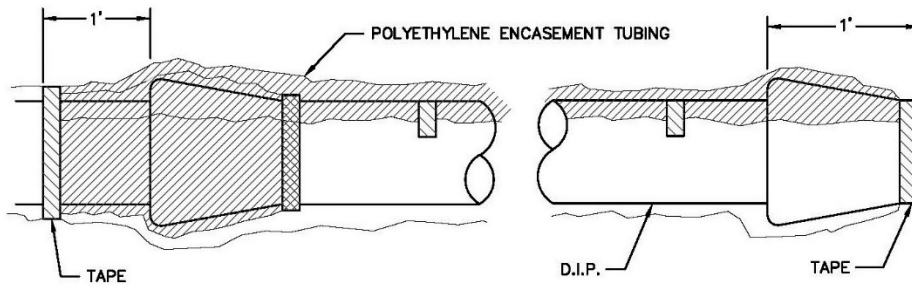
- A. Restrained joints shall be installed in accordance with the pipe manufacturer's recommendations.
- B. All joints within utility casings shall be restrained joints.

### 3.08 POLYETHYLENE ENCASUREMENT

- A. Polyethylene encasement shall be installed on all ductile iron pipe, fittings and appurtenances. The polyethylene shall be installed in a manner to prevent contact between the pipe, fittings, and the surrounding embedment.
- B. The polyethylene encasement shall be installed as shown on the Construction Detail No. 02620-1 and as follows:
  - 1. Polyethylene encasement tubing shall be approximately two (2) feet longer than the length of the pipe section to provide a one (1) foot of overlap on each adjacent pipe section.
  - 2. Repair rips, punctures, or other damages to the polyethylene encasement with adhesive tape or with a short length of polyethylene tube cut open, wrapped around the pipe, and secured with adhesive tape as directed by the City.
- C. Bolted Connections: All bolted connection shall be protected by 2 layers of polyethylene encasement. A minimum of 6 inches of overlap is required on each side of the connection.
- D. Pipe-Shaped Appurtenances: Bends, reducers, offsets, and other pipe-shaped appurtenances shall be covered with polyethylene in the same manner as the pipe.
- E. Odd-Shaped Appurtenances:
  - 1. Valves, tees, crosses, and other odd-shaped pieces that cannot practically be wrapped in a tube shall be wrapped with a flat sheet or split length of polyethylene encasement tube.
  - 2. The sheet shall be passed under the appurtenance and brought up around the body.
  - 3. Seams shall be made by bringing the edges together, folding over twice, and taping down.
  - 4. Tape polyethylene encasement securely in place at overlaps, valve tops and all other penetrations.
- F. Lifting devices shall not be placed over polyethylene.
- G. Polyethylene shall be protected from exposure to weather or damage at all times.
- H. Openings in Encasement:
  - 1. Openings for branches or other appurtenances shall be made by making an x-shaped cut in the polyethylene and temporarily folding the film back.
  - 2. After the appurtenance is installed, tape the slack securely to the appurtenance and repair the cut as well as any other damaged areas in the polyethylene with tape.
  - 3. The new appurtenance shall be wrapped.
- I. Junctions between Wrapped and Unwrapped Pipe:
  - 1. Where polyethylene wrapped pipe joins an existing pipe which is not wrapped, extend the polyethylene tube to cover the unwrapped pipe a distance of at least three feet.
  - 2. Secure the end with three circumferential turns of tape.

DETAIL 02620-1 ON NEXT PAGE

DETAIL 02620-1



NOTES:

1. TAPE IN ACCORDANCE WITH AWWA C105

POLYETHYLENE ENCASEMENT  
FOR DIP SEWERS

WATER SERVICES  
CITY OF KANSAS CITY, MISSOURI

DRAWING NO. 02620-1

DEVELOPED BY: \_\_\_\_\_  
TECHNICAL ADVISORY COMMITTEE

APPROVED BY: \_\_\_\_\_  
DATE: 1/22/2021

1  
OF  
1

END OF SECTION

## SECTION 05310

### STEEL DECKING

#### **PART 1      GENERAL 1.01      SUMMARY**

- A. Section includes: Steel deck for floors and roofs, and associated accessories. The steel decking currently installed at the Project will be removed prior to the Work and will be re-installed once the Work is completed. Replace steel decking that is damaged or deteriorated prior to re-installment.

#### **1.02 REFERENCES**

- A. ASTM International (ASTM):
  - 1. A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- B. American Welding Society (AWS):
  - 1. D1.3 - Structural Welding Code - Sheet Steel.

#### **1.03 SUBMITTALS**

- A. Product data.
- B. Shop drawings.

#### **1.04 DELIVERY, STORAGE, AND HANDLING**

- A. Storage and protection:
  - 1. Once removed, store steel deck at the site stacked on platforms or pallets and covered with tarpaulins or other suitable weathertight covering.
  - 2. Do not use steel deck for storage or working platform.
  - 3. Remove damaged, unlabeled, untagged, rusty, and deteriorated steel deck material from the job site.

#### **PART 2      PRODUCTS 2.01      MANUFACTURERS**

- A. One of the following or equal:
  - 1. Vulcraft.
  - 2. ASC Profiles (Formerly IMSA Building Products).
  - 3. Verco Manufacturing Co.

#### **2.02 MATERIALS**

- A. Sheet steel: ASTM A653, G 90 minimum coating designation.

#### **2.03 FABRICATION**

- A. Steel deck shall be formed:



1. So every sheet is identical and will register perfectly with adjacent sheets.
  2. In accordance with building code as specified in Section 01410 - Regulatory Requirements.
- B. Decking used with concrete fill shall be deformed to develop composite action between the deck and the concrete.
- C. Furnish minimum gauge, deck thickness, section modulus, moment of inertia, and allowable diaphragm shear per foot of deck width that is not less than for type deck sections currently at site.
- D. Treat exposed roof deck with phosphate.
- E. Furnish roof deck ready to receive field painting without further pretreatment. Paint exposed roof deck in accordance with Contract Documents.
- F. Accessories:
1. Furnish all accessories as required to complete work.
  2. Minimum required gauges:
    - a. Sump pans: 14 gauge.
    - b. All other accessories: 20 gauge unless otherwise indicated on the Drawings.
- G. Welding and electrodes: In accordance with AWS D1.3.
- H. Furnish roof decking in lengths to minimize number of splices.
- I. Furnish steel deck complete, including cutting, shaping, fitting, drilling, welding, ridge plates, valley plates, reinforcing plates for openings, and miscellaneous pieces necessary for proper installation.

### **PART 3 EXECUTION 3.01 EXAMINATION**

- A. Verification of conditions: Examine work in place to verify that it is satisfactory to receive the work of this Section. If unsatisfactory conditions exist, do not begin this work until such conditions have been corrected.

### **3.02 INSTALLATION**

- A. Decking shall span over at least 3 spans wherever possible.
- B. Do not damage or overload roof deck during installation.
- C. Do not use steel deck for storage or as a working platform until sheets have been welded in position. Do not exceed maximum uniformly distributed load of 20 pounds per square foot.
- D. Install decking in straight and continuous rows as far as practicable, with ribs at right angles to supporting members.

- E. For each end of deck section, provide 3 inches minimum bearing on supports. For sections that abut each other, each piece shall bear a minimum of 3 inches on the support. This requires a 6 inch minimum flange width. For cases where the minimum bearing cannot be obtained, notify the Engineer.
- F. Electric arc weld deck sections to bearing plates, supports at butt joints, at intermediate supports, side supports, and at end supports as indicated on the Drawings. Do not burn through the deck. Remove all slag.
- G. Fasten the longitudinal joints between deck sections together by the method indicated on the Drawings.
- H. Neatly cut and fit openings in roof deck, and reinforce with structural steel members as indicated on the Drawings. J. Paint welds as specified.
- K. Install roof deck free of dents and bent members.
- L. Reinforce all holes and openings in steel deck as indicated on the Drawings.
- M. Piping, conduit, equipment, and other services: Do not hang from decking.
- N. Install all accessories required to complete work.
- O. Suspended items:
  - 1. Ceilings and ductwork:
    - a. Do not attach hangers to deck within the center 1/3 of span.
    - b. Only 1 hanger may be attached to any 1 rib within 1 span.
    - c. Attach wire hangers to decking with clips through hanger tabs.

### **3.03 REPAIR OF GALVANIZING AND COATING**

- A. Touch-up damage to galvanized surfaces, including cut edges and holes, with zinc rich primer.
- B. Repair damage to factory-applied coating system in accordance with the manufacturer's printed recommendations.

### **3.04 CLEANUP**

- A. After erection, remove weld spatter, grease, and oil from decking.

END OF SECTION

SECTION 05550

STUDS AND NUTS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The Design-Builder shall provide all labor, materials, equipment, and incidentals necessary to perform the Work as described in Section 01100, and other uses as required for construction of the work as specified herein.
  - 1. The Design-Builder shall furnish all labor, materials, equipment and incidentals as necessary to comply with these requirements, as specified.
- B. This section covers studs and nuts to be installed in association with the Work and as identified in the Contract Drawings identified in Section 00800 SC-4.04.
- C. The Design-Builder will complete this work without taking the 60-inch force mains out of service. The replacement of the studs and nuts will be sequenced as such to achieve this.
- D. The General Equipment Stipulations set forth additional requirements for equipment.

1.02 NOT USED

1.03 RELATED WORK

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all applicable Division Sections, apply to this section.

PART 2 PRODUCT

2.01 GENERAL

- A. Except where specifically shown or specified otherwise, all anchor bolts shall be stainless steel at least 3/4 inch in diameter and expansion anchors shall be of the type specified herein.

2.02 MATERIALS

- A. Studs A193 B7, All Thread Stud, Plain Finish
- B. Nuts A194 2H Heavy Hex Nuts, Plain Finish
- C. Washers ASTM A240, ANSI 304
- D. Flat ANSI B18.22.1
- E. Lock ANSI ASME B18.21.1, helical spring type

## 2.03 STUDS AND NUTS

- A. Studs and nuts shall be delivered in time to permit setting before the structural concrete is placed. Anchor bolts which are cast-in-place in concrete shall be provided with sufficient threads to permit a nut to be installed on the concrete side of the concrete form or supporting template. Two nuts shall be furnished for each anchor bolt.

### PART 3 EXECUTION:

- 3.01 Anti-seize thread lubricant shall be liberally applied to projecting threaded portions of studs and nuts immediately before installation and tightening of the nuts.
- 3.02 Studs and nuts removal and replacement will be sequenced by Design-Builder to maintain operation of the two 60-inch force main. Both 60-inch force mains will be fully operational for the duration of the Work.

END OF SECTION

## SECTION 09960 – HIGH PERFORMANCE COATING SYSTEMS

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Work under this section consists of surface preparation, priming, painting, and finishing work necessary to complete Work indicated or reasonably implied in Contract Documents.
2. Use high performance coating systems specified in this section to finish components, unless otherwise indicated. Without restricting volume or generality, work to be performed under this section may include, but is not limited to:
  - a. Exterior & Interior Steel, New and Existing Non-Immersion
  - b. Exterior Steel, New and Existing, Immersion
  - c. Cast Iron, Ductile Iron, Non-Galvanized, Non-Ferrous, or Steel.
  - d. New & Existing Galvanized Surfaces
  - e. Structural Steel
  - f. Exposed Metal Piping, Supports and Conduits
  - g. New Plastic, FRP, Flexible Conduit, Piping and Ductwork
  - h. Copper, Other Non-Galvanized and Non-Ferrous Surfaces
3. Painting or finishing is not needed for following:
  - a. Surfaces or materials specifically scheduled or shown on Drawings to remain unfinished.
  - b. Items provided with factory finish.
  - c. Equipment nameplates, fire rating labels, and operating parts of equipment
  - d. Materials and products having factory-applied primer shall not be considered factory finished.

##### B. Related Sections:

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all applicable Division Sections, apply to this section.

#### 1.2 REFERENCES

##### A. Publications listed herein are part of this specification to extent referenced.

##### B. American National Standards Institute:

1. ANSI A13.1 Scheme for the Identification of Piping Systems
2. ANSI Z535.1 Safety Color Code
3. ANSI/ASC 29.4 Abrasive Blasting Operations – Ventilation and Safe Practice

##### C. American Society for Testing and Materials:

1. ASTM D 6386 Standard Practice for Preparation of Galvanized Iron and Steel

##### D. National Fire Protection Association:

1. NFPA 101 Life Safety Code

E. National Association of Pipe Fabricators

1. NAF-500-03 Surface Preparation Standard

F. SSPC: The Society for Protective Coatings (SSPC)

1. SSPC SP-1 – Solvent Cleaning
2. SSPC SP-2 – Hand Tool Cleaning
3. SSPC SP-3 – Power Tool Cleaning
4. SSPC SP-6 – Commercial Blast Cleaning
5. SSPC SP-11 – Power Tool Cleaning to Bare Metal with a 1 Mil Profile
6. SSPC-SP13 – Surface Preparation of Concrete
7. SSPC PA-1 – Painting Application Specification
8. SSPC-PA-3 – “A Guide to Safety in Paint Application”
9. SSPC-Guide 12 Guide for Illumination of Industrial Painting Project.

G. International Concrete Restoration Institute (ICRI)

1. Guideline No. 03732—Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays

H. NACE International (NACE)

1. NACE 6D-173 – “A Manual for Painter Safety”
2. NACE 6G-164 – “Surface Preparation Abrasives for Industrial Maintenance Painting”
3. NACE TPC2 – Coating and Lining for Immersion Service: Chapter 1 Safety, Surface Preparation, Chapter 3 Curing, and Chapter 2 Inspection
4. NACE 6F-163 – “Surface Preparation of Steel of Concrete Tank Interiors.”
5. NACE RP0892-92 – Standard Recommended Practice, Lining over Concrete in Immersion Service.
6. NACE RP0288-88 – Standard Recommended Practice, Inspection of Linings on Steel and Concrete.
7. NACE RP0188 – Standard Recommended Practice, Discontinuity (Holiday) Testing of Protective Coatings.

I. Code of Federal Regulations (CFR)

1. 1915.35 Standards – 29 CFR – Painting

### 1.3 DEFINITIONS

- A. Terms Paint or Painting shall in a general sense have reference to sealers, primers, oil, alkyd, latex, polyurethane, epoxy, and enamel type coatings and application of these materials.
- B. Dry Film Thickness (DFT): Thickness, measured in mils, of a coat of paint in cured state.
- C. Conform to ASTM D16 for interpretation of terms used in this section.

### 1.4 SUBMITTALS

A. Product Data:

1. Submit manufacturer's literature describing products to be provided, giving manufacturer's name, product name, and product line number for each material.
2. Submit technical data sheets for each coating, giving descriptive data, curing times, mixing, thinning, and application requirements.

3. Provide material analysis, including vehicle type and percentage by weight and by volume of vehicle, resin and pigment.
  4. Submit manufacturer's Safety Data Sheets (SDS) and other safety requirements.
- B. Shop Drawings:
1. Submit a complete list of products proposed for use, including identifying product names and catalog numbers.
  2. Arrange in same format as Schedule of Paint Finishes below.
  3. Include applicable manufacturer's data and recommendations.
- C. Samples:
1. Selection Samples:
    - a. Submit color charts displaying manufacturer's full range of standard colors for initial selection by Engineer.
  2. Verification Samples:
    - a. Submit 3 samples of each coating and color selected, showing bare, prepared surface and each successive coat.
    - b. Samples shall be submitted on hardboard or metal as appropriate to coating system. Label samples on back, identifying manufacturer, product name, and color number.
    - c. Sample Size: Not less than 12" x 12" (300 mm x 300 mm)
- D. Quality Assurance Submittals:
1. Test Reports:
    - a. Provide certified test reports, prepared by an independent testing laboratory, confirming compliance with specified performance criteria.
  2. Certificates:
    - a. Coatings manufacturer shall certify that coating materials utilized are "non-lead" (less than 0.06% lead by weight in dried film) as defined in Part 1303 of Consumer Product Safety Act.
    - b. Provide certification that specialized equipment as may be required by manufacturer for proper application of coating materials shall be utilized for work of this Section.
    - c. Provide manufacturer's certification that products to be used comply with specified requirements and are suitable for intended application.
    - d. Submit listing of not less than 5 of applicator's most recent applications representing similar scope and complexity to Project requirements. List shall include information as follows:
      - 1) Project name and address
      - 2) Name of owner
      - 3) Name of contractor
      - 4) Name of engineer
      - 5) Date of completion
  3. Manufacturer's Instructions:
    - a. Submit manufacturer's installation procedures which shall be basis for accepting or

rejecting actual installation procedures.

## 1.5 QUALITY ASSURANCE

### A. Qualifications:

1. Provide products from a company specializing in manufacture of high performance coatings with a minimum of 10 years' experience.
2. Applicator shall be trained in application techniques and procedures of coating materials and shall demonstrate a minimum of 2 years successful experience in such application.
  - a. Maintain, throughout duration of application, a crew of painters who are fully qualified to satisfy specified qualifications.
3. Single Source Responsibility:
  - a. Materials shall be products of a single manufacturer or items standard with manufacturer of specified coating materials.
  - b. Provide secondary materials which are produced or are specifically recommended by coating system manufacturer to ensure compatibility of system.

### B. Regulatory Requirements:

1. Conform to applicable codes and ordinances for flame, fuel, smoke, and volatile organic compound (VOC) ratings requirements for finishes at time of application.

### C. Pre-Installation Meetings:

1. Schedule a conference and inspection to be held on-site before field application of coating systems begins.
2. Conference shall be attended by Design-Builder, Owner's representative, coating applicators, and a representative of coating material manufacturer.
3. Topics to be discussed at meeting shall include:
  - a. A review of Contract Documents and accepted shop drawings shall be made and deviations or differences shall be resolved.
  - b. Review items such as environmental conditions, surface conditions, surface preparation, application procedures, and protection following application.
  - c. Establish which areas on-site will be available for use as storage areas and working area.
4. Pre-construction conference and inspection shall serve to clarify Contract Documents, application requirements and what work should be completed before coating application can begin.
5. Prepare and submit, to parties in attendance, a written report of pre-installation conference. Report shall be submitted with 3 days following conference.

## 1.6 DELIVERY, STORAGE, AND HANDLING

### A. Packing, Shipping, Handling, and Unloading:

1. Deliver products in manufacturer's original unopened containers. Each container shall have manufacturer's label, intact and legible. Containers shall fully identify brand, type, grade, class, and other qualifying information used to describe contents.
2. Include on label for each container:



- a. Manufacturer's name
- b. Type of paint
- c. Manufacturer's stock number
- d. Color name and number
- e. Instructions for thinning, where applicable

B. Storage and Protection:

1. Store materials in a protected area, away from construction activities. Restrict storage area to paint materials and related equipment.
2. Maintain temperature in area of storage between 40°F (4°C) and 110°F (43°C).
3. Comply with health and fire safety regulations.
4. Remove damaged materials from Site.

## 1.7 PROJECT CONDITIONS

A. Environmental Requirements:

1. Apply coating materials under conditions as follows:
  - a. Air temperature shall not be below 35°F (2°C) or above 110°F (43°C).
  - b. Refer to specific product information sheets for minimum surface temperature requirements. Surface temperatures shall be at least 5°F (15°C) above dew point and in a rising mode.
  - c. Relative humidity shall be no higher than 85%. This work will be completed in September-October to mitigate this concern or Design-Builder will provide a humidity controlled environment.
  - d. For exterior spray application, wind velocity shall be less than 15 mph (25 k/h).
  - e. Atmosphere shall be relatively free of airborne dust.

## 1.8 SEQUENCING

A. Coordination:

Perform work in proper sequence with work of other trades to avoid damage to finished work.

1. Where coatings are scheduled to be applied over shop applied coatings, coordinate work of such shop applied products to ensure compatibility with field applied coating systems.

## 1.9 SAFETY

A. The Design-Builder's work forces should comply with the provisions outlined in the following documents:

1. SSPC-PA-3 – "A Guide to Safety in Paint Application"
2. NACE Publication – "A Manual for Painter Safety"

B. The Design-Builder shall provide personnel with all safety equipment necessary to protect them during any phase of the work. This shall include, but not be limited to safety glasses, goggles, earplugs, hard hats, steel toed work shoes, appropriate personal protective clothing, gloves, and plant approved escape respirators (where required).

C. No work shall be performed until the appropriate Work Requests and lock-outs are approved by the Engineer. The Work Request system provides a mechanism to advise plant staff of a

contractor's work activities. The Lockout system is a safety procedure to prevent unintended equipment activation.

- D. Keep any flammable materials such as cleaning solvents, thinners, or resurfacing materials away from open flames, sparks or temperatures higher than 150°F. Drums containing flammable materials will be grounded. No solvent in any quantity shall be allowed inside containment enclosures or permitted confined spaces at any time during resurfacing work.
- E. Power tools are to be in good working order to avoid open sparking. No spark producing tools shall be utilized in restricted areas as indicated herein.
- F. The Design-Builder shall fireproof all work areas by maintaining a clean work area and having Underwriter's Laboratories approved fire extinguishers on-hand. The Design-Builder shall furnish these fire extinguishers
- G. Workers doing abrasive blasting operations shall wear a fresh air supplied protective helmet and hood and personal protective clothing acceptable to industry standards and all government regulations.
- H. Dispose of rags used for wiping up resurfacing materials, solvents, and thinners by drenching them with water and placing in a metal container with a tight fitting metal cover. Complete this disposal process at the end of each day. Final disposal of these materials is the Design-Builder's responsibility.
- I. Matches, smoking, flames, or sparks resulting from any source including welding, must be remote from the work area during coating work. Smoking is permitted only in designated areas of the plant.

## PART 2 - PRODUCTS

### 2.1 ACCEPTABLE MANUFACTURERS

- A. To define requirements for materials, size, and design, this specification lists specific products manufactured by Carboline Company. Materials specified herein are cited as minimum standard of quality which will be acceptable.
- B. Materials specified herein shall not preclude consideration of equivalent or superior materials. Suggested equivalent materials or other substitutions shall be submitted to Owner for consideration in compliance with substitution procedures in Section 016000 of this Project Manual.
  - 1. Requests for substitution shall include evidence of satisfactory past performance on water and waste water treatment facilities.
  - 2. Substitutions will not be considered that change number of coats or do not meet specified total dry film thickness.

### 2.2 MATERIALS

- A. Carboline Carbomastic 615 AL
  - 1. Generic Type: Aluminum-Filled Phenalkamine Epoxy Mastic
  - 2. Finish: Semi-Gloss
  - 3. Color: Aluminum
  - 4. Properties:
    - a. Volume Solids: 80% +/- 2%

- b. VOC: 172 grams/liter
- c. HAPS: 1.63 lbs/gallon solids

B. Carboline Carboguard 690

- 1. Generic Type: Phenalkamine Epoxy
- 2. Finish: Semi-Gloss
- 3. Color: Light Blue
- 4. Properties:
  - a. Volume Solids: 80% +/- 2%
  - b. VOC: 170 grams/liter

2.3 ACCESSORIES

A. Coating Application Accessories

- 1. Provide application accessories as indicated in coating manufacturer's application instructions, including but not limited to cleaning agents, etching agents, cleaning cloths, sanding materials, and clean-up materials.
- 2. Material not specifically identified, but needed for proper application shall be of a quality not less than specified products.

B. Sealants – NOT USED

C. Abrasive Blast Media

- 1. If dry or wet abrasive blast cleaning is the selected method of surface preparation, provide slag grit of a sieve size, gradation, and quality necessary to produce the degree of cleanliness and surface profile required herein.

2.4 SOURCE QUALITY CONTROL

A. Testing Laboratory Services:

- 1. Documents:
  - a. Review Contract Documents and applicable sections of referenced standards.
- 2. Shop Painting Inspection:
  - a. Verify cleaning operations to surfaces are to condition specified.
  - b. Verify conformance of paint to specification.
  - c. Check for thickness of each coating, final thickness and holidays.
  - d. Check touch-up for final finish.
- 3. Reports:
  - a. Submit written progress reports describing tests and inspections made and showing action taken to correct non-conforming work. Report uncorrected deviations from Contract Documents.

PART 3 - EXECUTION

### 3.1 ACCEPTABLE INSTALLERS

- A. Employ only trades-people who have at least five (5) years of experience performing specialized coating surfacing work of similar size and complexity as the work specified in this Section.

### 3.2 EXAMINATION

#### A. Site Verification of Conditions:

- 1. Examine areas and conditions under which application of coating systems shall be performed for conditions that will adversely affect execution, permanence, or quality of coating system application.
- 2. Correct conditions detrimental to timely and proper execution of Work.
- 3. Do not proceed until unsatisfactory conditions have been corrected.
- 4. Commencement of installation constitutes acceptance of conditions and responsibility for satisfactory performance.

### 3.3 PROTECTION

- A. Take precautionary measures to prevent fire hazards and spontaneous combustion. Remove empty containers from Site.
- B. Place cotton waste, cloths and hazardous materials in containers, and remove from Site daily.
- C. Provide drop cloths, shields, and other protective equipment.
- D. Protect elements surrounding work of this section from damage or disfiguration.
- E. As Work proceeds, promptly remove spilled, splashed, or splattered materials from surfaces.
- F. During application of coating materials, post Wet Paint signs.
- G. During application of solvent-based materials, post No Smoking signs.
- H. Surface Preparation:
  - 1. General Requirements:
    - a. Prior to application of primer, surfaces shall be prepared to receive specified coating system in compliance with manufacturer's recommendations and specifications of SSPC as indicated in Schedule below.
    - b. Clean surfaces of residual deposits of grease, scale, rust, oil, dirt, and other foreign matter, immediately prior to priming. Surfaces to be coated shall be clean, dry, smooth and free from dust and foreign matter that will adversely affect adhesion or appearance.

### 3.4 SURFACE PREPARATION FOR COATING SYSTEMS

#### A. Iron Force Main Pipe and Connections:

- 1. All surfaces to be cleaned per SSPC-SP6 Commercial Blast Cleaning.
- 2. Provide a minimum surface profile of 2.0-3.0 mil anchor profile.
- 3. All surfaces must be clean and dry and free of contamination prior to coating.

### 3.5 APPLICATION

A. General Requirements:

1. All Surfaces:

- a. Protective coating systems shall be installed when ambient air and surface temperature is above 50°F. The substrate temperature shall be at least 5°F (3°C) above the dew point. Condition the material between 70-80°F (21-27°C) for 24 hours prior to use. Application when temperatures outside of this range will require written instruction from the Manufacturer and approval of the Engineer.
- b. Apply coating systems in compliance with manufacturer's instructions and using application method best suited for obtaining full, uniform coverage of surfaces to be coated.
- c. Apply primer, intermediate, and finish coats to comply with wet and dry film thicknesses and spreading rates for each type of material as recommended by manufacturer.
  - 1) Application rates in excess of those recommended and fewer numbers of coats than specified shall not be accepted.
- d. Number of coats specified shall be minimum number acceptable. Apply additional coats as needed to provide a smooth, even application.
  - 1) Closely adhere to re-coat times recommended by manufacturer. Allow each coat to dry thoroughly before applying next coat. Provide adequate ventilation for tank interior to carry off solvents during drying phase.
- e. Employ only application equipment that is clean, properly adjusted, and in good working order, and of type recommended by coating manufacturer.

B. Iron Force Main Pipe and Connections:

- a. After the surface is prepared according to this Section, coatings will be applied as identified in the schedule below. Apply coating systems in compliance with manufacturer's instructions and using application method best suited for obtaining full, uniform coverage of surfaces to be coated.
- b. Apply all coats to comply with wet and dry film thicknesses and spreading rates for each type of material as recommended by manufacturer and as indicated on the schedule below.
  - 1) Application rates in excess of those recommended and fewer numbers of coats than specified shall not be accepted.

3.1 SURFACES NOT TO BE COATED:

- A. Do not field coat any of the following items unless specifically noted otherwise.
1. Copper, stainless steel, aluminum, FRP fabrications, Conduit, PVC piping.

3.2 COLOR CODING OF PIPING AND PHYSICAL HAZARDS:

- A. Color Coding of Piping: Exterior and interior by color coding entire pipe.
1. General:

- a. Coat piping with solid colors as specified below for entire length of pipe in exposed finished and unfinished areas. Exclude areas in pipe chases and furred areas.
- b. Coat all other piping in colors matching adjacent surfaces. If adjacent area is unfinished, paint in color determined by Owner.

2. Color Scheme:

<u>ITEM</u>	<u>Color</u>
Existing Force Mains	Light Blue (match existing)
Other Existing Abated Process Piping and Connections	Light Blue (match existing)
New Studs and Nuts	Light Blue (match existing)

3.6 REPAIR/RESTORATION

- A. At completion of Work, touch-up and restore finishes where damaged.
- B. Defects in Finished Surfaces:
  - 1. When stain, dirt, or undercoats show through final coat, correct defects and cover with additional coats until coating is of uniform finish, color, appearance and coverage.
  - 2. Correct defects visible from a distance of 5 feet. Runs shall not be permitted.
  - 3. Touch-up of minor damage shall be acceptable where result is not visibly different from surrounding surfaces. Where result is visibly different, in color, sheen, or texture, recoat entire surface.
- C. Hoisting, Scaffolding, Staging, and Planking:
  - 1. Provide, set-up, and maintain all required hoists, scaffolds, and staging and planking, and perform all access related hoisting work required to complete the work of this section as indicated and specified.
  - 2. Scaffolds shall have solid backs and floors to prevent dropping materials from there to the floors or ground below.
- D. Environmental Requirements:
  - 1. Comply with the Manufacturer's recommendations as to environmental conditions under which resurfacing system materials can be applied.
  - 2. Do not apply resurfacing system materials when dust is in work site.
  - 3. The Design-Builder shall provide all temporary lighting during the work.
- E. Protection:
  - 1. Cover or otherwise protect finish work or other surfaces not being resurfaced.
  - 2. Erect and maintain protective tarps, enclosures and/or maskings to contain debris (such as dust or airborne particles resulting from surface preparation) generated during any and all work activities. This includes, but is not limited to, the use of dust/debris collection apparatus as required.
- F. Initial Inspection of Surfaces to be Coated:
  - 1. It is the responsibility of the Design-Builder to inspect and report unacceptable surface conditions to the Owner prior to the commencement of surface preparation activities. Unacceptable surface conditions are defined as the presence of heavy corrosion or pitting that will adversely affect the coating system as specified herein.

G. Thinners and Solvents:

1. The Design-Builder shall use only solvents and thinners as recommended by the Manufacturer.

### 3.7 FIELD QUALITY CONTROL

A. Testing Laboratory Services:

1. Field Painting Inspection:

1. Verify cleaning operations to surfaces are to condition specified. Verify conformance of paint to specification. Check for thickness of each coating, final thickness and holidays. Check touch-up for final finish.

2. Reports:

1. Submit written progress reports describing tests and inspections made and showing action taken to correct non-conforming work. Report uncorrected deviations from Contract Documents.

3. Manufacturer's Field Service:

1. Coatings manufacturer shall be available to provide on-site inspections, technical assistance, and guidance for application of coating system as needed.

### 3.8 CLEANING

1. At completion of day's work, remove from Site rubbish and accumulated materials.
2. Clean paint spots and other soiling from prefinished surfaces and surfaces with integral finish. Use solvents which will not damage finished surface.
3. Leave storage area clean and in same condition indicated for equivalent spaces in Project.

### 3.9 PROTECTION

- A. Protect work against damage until fully cured. Provide signs identifying wet surfaces until surfaces are adequately cured.

### 3.10 WASTE MANAGEMENT

A. General Requirements:

1. Place materials defined as hazardous or toxic waste in designated containers.
2. Return solvent and oil soaked rags for contaminant recovery and laundering or for proper disposal.
3. Do not dispose of paints or solvents by pouring on ground. Place in designated containers for proper disposal.
4. Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility.

### 3.11 SCHEDULE OF COATING SYSTEMS

A. Existing Iron Pipe, Connections, Studs and Nuts

1. System 1: Aluminum-Filled Phenalkamine Epoxy Mastic, Semi-Gloss Finish and Phenalkamine Epoxy, Semi-Gloss Finish:

- a) Surface Preparation: All surface to be cleaned per SSPC-SP6 to create a minimum of 2-3 mil profile; all surfaces to be clean and dry prior to coating. Remove and replace existing studs and nuts and other irregular surfaces prior to priming.
- b) Prime Coat (Bolted Connections Only): Carbomastic 615 AL at 5.0-10.0 mils DFT. If heavy corrosion and pitting is present along remainder of pipe, Prime Coat will be applied to those additional surfaces pending approval from Owner.
- c) Second Prime Coat: Carbomastic 615 AL at 5.0-10.0 mils DFT.
- d) Third Coat: Carboguard 690 at 5.0-8.0 mils DFT.

END OF SECTION



SECTION 15050 –  
BASIC MECHANICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
1. Piping materials and installation instructions common to most piping systems.
  2. Transition fittings.
  3. Dielectric fittings.
  4. Mechanical sleeve seals.
  5. Sleeves.
  6. Escutcheons.
  7. Grout.
  8. Mechanical demolition.
  9. Equipment installation requirements common to equipment sections.
  10. Painting and finishing.
  11. Concrete bases.
  12. Supports and anchorages.

1.3 DEFINITIONS

- A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspace, and tunnels.
- B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.
- C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.
- D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in duct shafts.

- E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.
- F. The following are industry abbreviations for plastic materials:
  - 1. ABS: Acrylonitrile-butadiene-styrene plastic.
  - 2. CPVC: Chlorinated polyvinyl chloride plastic.
  - 3. PE: Polyethylene plastic.
  - 4. PVC: Polyvinyl chloride plastic.
- G. The following are industry abbreviations for rubber materials:
  - 1. EPDM: Ethylene-propylene-diene terpolymer rubber.
  - 2. NBR: Acrylonitrile-butadiene rubber.

#### 1.4 SUBMITTALS

- A. Product Data: For the following:
  - 1. Transition fittings.
  - 2. Dielectric fittings.
  - 3. Mechanical sleeve seals.
  - 4. Escutcheons.

- B. Welding certificates.

#### 1.5 QUALITY ASSURANCE

- A. Steel Support Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code--Steel."
- B. Steel Pipe Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."
  - 1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."
  - 2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.
- C. Electrical Characteristics for Mechanical Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit breakers, and conduit sizes are appropriately modified. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.
- B. Store plastic pipes protected from direct sunlight. Support to prevent sagging and bending.

## 1.7 COORDINATION

- A. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for mechanical installations.
- B. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.
- C. Coordinate requirements for access panels and doors for mechanical items requiring access that are concealed behind finished surfaces. Access panels and doors are specified in Division 8 Section "Access Doors and Frames."

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
  - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.
  - 2. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

### 2.2 PIPE, TUBE, AND FITTINGS

- A. Refer to individual Division 15 piping Sections for pipe, tube, and fitting materials and joining methods.
- B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

### 2.3 JOINING MATERIALS

- A. Refer to individual Division 15 piping Sections for special joining materials not listed below.
- B. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.

1. ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch (3.2-mm) maximum thickness unless thickness or specific material is indicated.
    - a. Full-Face Type: For flat-face, Class 125, cast-iron and cast-bronze flanges.
    - b. Narrow-Face Type: For raised-face, Class 250, cast-iron and steel flanges.
  2. AWWA C110, rubber, flat face, 1/8 inch (3.2 mm) thick, unless otherwise indicated; and full-face or ring type, unless otherwise indicated.
- C. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.
- D. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.
- E. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.
- F. Brazing Filler Metals: AWS A5.8, BCuP Series, copper-phosphorus alloys for general-duty brazing, unless otherwise indicated; and AWS A5.8, BAg1, silver alloy for refrigerant piping, unless otherwise indicated.
- G. Welding Filler Metals: Comply with AWS D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.
- H. Solvent Cements for Joining Plastic Piping:
  1. ABS Piping: ASTM D 2235.
  2. CPVC Piping: ASTM F 493.
  3. PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.
  4. PVC to ABS Piping Transition: ASTM D 3138.
- I. Fiberglass Pipe Adhesive: As furnished or recommended by pipe manufacturer.

## 2.4 TRANSITION FITTINGS

- A. AWWA Transition Couplings: Same size as, and with pressure rating at least equal to and with ends compatible with, piping to be joined.
1. Manufacturers:
    - a. Cascade Waterworks Mfg. Co.
    - b. Dresser Industries, Inc.; DMD Div.
    - c. Ford Meter Box Company, Incorporated (The); Pipe Products Div.
    - d. JCM Industries.
    - e. Smith-Blair, Inc.
    - f. Viking Johnson.
    - g. Or Equal

2. Underground Piping NPS 1-1/2 (DN 40) and Smaller: Manufactured fitting or coupling.
  3. Underground Piping NPS 2 (DN 50) and Larger: AWWA C219, metal sleeve-type coupling.
  4. Aboveground Pressure Piping: Pipe fitting.
- B. Plastic-to-Metal Transition Fittings: **[CPVC] [PVC] [CPVC and PVC]** one-piece fitting with manufacturer's Schedule 80 equivalent dimensions; one end with threaded brass insert, and one solvent-cement-joint end.
1. Manufacturers:
    - a. Eslon Thermoplastics.
    - b. City Approved Other
- C. Plastic-to-Metal Transition Adaptors: One-piece fitting with manufacturer's SDR 11 equivalent dimensions; one end with threaded brass insert, and one solvent-cement-joint end.
1. Manufacturers:
    - a. Thompson Plastics, Inc.
    - b. Or Equal
- D. Plastic-to-Metal Transition Unions: MSS SP-107, **[CPVC] [PVC] [CPVC and PVC]** four-part union. Include brass end, solvent-cement-joint end, rubber O-ring, and union nut.
1. **[Available]** Manufacturers:
    - a. NIBCO INC.
    - b. NIBCO, Inc.; Chemtrol Div.
    - c. Or Equal
- E. Flexible Transition Couplings for Underground Nonpressure Drainage Piping: ASTM C 1173 with elastomeric sleeve, ends same size as piping to be joined, and corrosion-resistant metal band on each end.
1. Manufacturers:
    - a. Cascade Waterworks Mfg. Co.
    - b. Fernco, Inc.
    - c. Mission Rubber Company.
    - d. Plastic Oddities, Inc.
    - e. Or Equal

## 2.5 DIELECTRIC FITTINGS

- A. Description: Combination fitting of copper alloy and ferrous materials with threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.
- B. Insulating Material: Suitable for system fluid, pressure, and temperature.
- C. Dielectric Unions: Factory-fabricated, union assembly, for 250-psig (1725-kPa) minimum working pressure at 180 deg F (82 deg C).
  - 1. Manufacturers:
    - a. Capitol Manufacturing Co.
    - b. Central Plastics Company.
    - c. Eclipse, Inc.
    - d. Epco Sales, Inc.
    - e. Hart Industries, International, Inc.
    - f. Watts Industries, Inc.; Water Products Div.
    - g. Zurn Industries, Inc.; Wilkins Div.
    - h. Or Equal
- D. Dielectric Flanges: Factory-fabricated, companion-flange assembly, for 150- or 300-psig (1035- or 2070-kPa) minimum working pressure as required to suit system pressures.
  - 1. Manufacturers:
    - a. Capitol Manufacturing Co.
    - b. Central Plastics Company.
    - c. Epco Sales, Inc.
    - d. Watts Industries, Inc.; Water Products Div.
    - e. Or Equal
- E. Dielectric-Flange Kits: Companion-flange assembly for field assembly. Include flanges, full-face- or ring-type neoprene or phenolic gasket, phenolic or polyethylene bolt sleeves, phenolic washers, and steel backing washers.
  - 1. Manufacturers:
    - a. Advance Products & Systems, Inc.
    - b. Calpico, Inc.
    - c. Central Plastics Company.
    - d. Pipeline Seal and Insulator, Inc.
    - e. Or Equal
  - 2. Separate companion flanges and steel bolts and nuts shall have 150- or 300-psig (1035- or 2070-kPa) minimum working pressure where required to suit system pressures.
- F. Dielectric Couplings: Galvanized-steel coupling with inert and noncorrosive, thermoplastic lining; threaded ends; and 300-psig (2070-kPa) minimum working pressure at 225 deg F (107 deg C).

1. Manufacturers:
  - a. Calpico, Inc.
  - b. Lochinvar Corp.
  - c. Or Equal

G. Dielectric Nipples: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining; plain, threaded, or grooved ends; and 300-psig (2070-kPa) minimum working pressure at 225 deg F (107 deg C).

1. Manufacturers:
  - a. Perfection Corp.
  - b. Precision Plumbing Products, Inc.
  - c. Sioux Chief Manufacturing Co., Inc.
  - d. Victaulic Co. of America.
  - e. Or Equal

## 2.6 MECHANICAL SLEEVE SEALS

A. Description: Modular sealing element unit, designed for field assembly, to fill annular space between pipe and sleeve.

1. Manufacturers:
  - a. Advance Products & Systems, Inc.
  - b. Calpico, Inc.
  - c. Metraflex Co.
  - d. Pipeline Seal and Insulator, Inc.
  - e. Or Equal
2. Sealing Elements: **[EPDM]** **[NBR]** interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
3. Pressure Plates: **[Plastic]** Include two for each sealing element.
4. Connecting Bolts and Nuts: **[Stainless steel]** of length required to secure pressure plates to sealing elements. Include one for each sealing element.

## 2.7 SLEEVES

- A. Galvanized-Steel Sheet: 0.0239-inch (0.6-mm) minimum thickness; round tube closed with welded longitudinal joint.
- B. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.
- C. Cast Iron: Cast or fabricated "wall pipe" equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

- D. Stack Sleeve Fittings: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for membrane flashing.
  - 1. Underdeck Clamp: Clamping ring with set screws.
- E. Molded PVC: Permanent, with nailing flange for attaching to wooden forms.
- F. PVC Pipe: ASTM D 1785, Schedule 40.
- G. Molded PE: Reusable, PE, tapered-cup shaped, and smooth-outer surface with nailing flange for attaching to wooden forms.

## 2.8 ESCUTCHEONS

- A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.
- B. One-Piece, Deep-Pattern Type: Deep-drawn, box-shaped with material compatible with high levels of hydrogen sulfide.

## 2.9 GROUT

- A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.
  - 1. Characteristics: Post-hardening, volume-adjusting, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
  - 2. Design Mix: 5000-psi (34.5-MPa), 28-day compressive strength.
  - 3. Packaging: Premixed and factory packaged.

# PART 3 - EXECUTION

## 3.1 MECHANICAL DEMOLITION

- A. Refer to Division 1 Sections "Cutting and Patching" and "Selective Demolition" for general demolition requirements and procedures.
- B. Disconnect, demolish, and remove mechanical systems, equipment, and components indicated to be removed.
  - 1. Piping Insulation to Be Removed: Remove existing asbestos insulation from existing force mains, other process piping, studs, and nuts; and replace as specified in Section 09960 – High Performance Coating Systems.



2. Studs and Nuts to Be Removed: Remove existing studs and nuts and replace with same or compatible studs and nuts. System will remain in-service throughout the duration of the Work.

### 3.2 PIPING SYSTEMS - COMMON REQUIREMENTS

- A. Install piping according to the following requirements and Division 15 Sections specifying piping systems.
- B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.
- C. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.
- D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.
- F. Install piping to permit valve servicing.
- G. Install piping at indicated slopes.
- H. Install piping free of sags and bends.
- I. Install fittings for changes in direction and branch connections.
- J. Install piping to allow application of insulation.
- K. Select system components with pressure rating equal to or greater than system operating pressure.
- L. Install escutcheons for penetrations of walls, ceilings, and floors according to the following:
  1. New Piping (all material compatible with a high hydrogen sulfide environment):
    - a. Piping with Fitting or Sleeve Protruding from Wall: One-piece, deep-pattern type.
    - b. Insulated Piping: One-piece,
    - c. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, Retain subparagraph above or first subparagraph below.
    - d. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, stamped-steel type.

- e. Bare Piping at Ceiling Penetrations in Finished Spaces Retain subparagraph above or first subparagraph below.
  - f. Bare Piping at Ceiling Penetrations in Finished Spaces
  - g. Bare Piping in Unfinished Service Spaces: One-piece, Retain subparagraph above or first subparagraph below.
  - h. Bare Piping in Unfinished Service Spaces: One-piece,
  - i. Bare Piping in Equipment Rooms: One-piece,
  - j. Bare Piping in Equipment Rooms: One-
- M. Sleeves are not required for core-drilled holes.
- N. Permanent sleeves are not required for holes formed by removable PE sleeves.
- O. Install sleeves for pipes passing through concrete and masonry walls and concrete floor and roof slabs.
- P. Install sleeves for pipes passing through concrete and masonry walls, gypsum-board partitions, and concrete floor and roof slabs.
1. Cut sleeves to length for mounting flush with both surfaces.
    - a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches (50 mm) above finished floor level. Extend cast-iron sleeve fittings below floor slab as required to secure clamping ring if ring is specified.
  2. Install sleeves in new walls and slabs as new walls and slabs are constructed.
  3. Install sleeves that are large enough to provide 1/4-inch (6.4-mm) annular clear space between sleeve and pipe or pipe insulation. Use the following sleeve materials:
    - a. **[PVC] Pipe Sleeves:** For pipes smaller than NPS 6 (DN 150).
    - b. **Steel Sheet Sleeves:** For pipes NPS 6 (DN 150) and larger, penetrating gypsum-board partitions.
    - c. **Stack Sleeve Fittings:** For pipes penetrating floors with membrane waterproofing. Secure flashing between clamping flanges. Install section of cast-iron soil pipe to extend sleeve to 2 inches (50 mm) above finished floor level. Refer to Division 7 Section "Sheet Metal Flashing and Trim" for flashing.
      - 1) Seal space outside of sleeve fittings with grout.
  4. Except for underground wall penetrations, seal annular space between sleeve and pipe or pipe insulation, using joint sealants appropriate for size, depth, and location of joint. Refer to Division 7 Section "Joint Sealants" for materials and installation.
- Q. Aboveground, Exterior-Wall Pipe Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch (25-mm) annular clear space between pipe and sleeve for installing mechanical sleeve seals.

1. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.
- R. Underground, Exterior-Wall Pipe Penetrations: Install cast-iron "wall pipes" for sleeves. Seal pipe penetrations using mechanical sleeve seals. Select sleeve size to allow for 1-inch (25-mm) annular clear space between pipe and sleeve for installing mechanical sleeve seals.
1. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.
- S. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Refer to Division 7 Section "Through-Penetration Firestop Systems" for materials.
- T. Verify final equipment locations for roughing-in.
- U. Refer to equipment specifications in other Sections of these Specifications for roughing-in requirements.

### 3.3 PIPING JOINT CONSTRUCTION

- A. Join pipe and fittings according to the following requirements and Division 15 Sections specifying piping systems.
- B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- D. Soldered Joints: Apply ASTM B 813, water-flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook," using lead-free solder alloy complying with ASTM B 32.
- E. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," "Pipe and Tube" Chapter, using copper-phosphorus brazing filler metal complying with AWS A5.8.
- F. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
  2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.
- G. Welded Joints: Construct joints according to AWS D10.12, using qualified processes and welding operators according to Part 1 "Quality Assurance" Article.
- H. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.
- I. Plastic Piping Solvent-Cement Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:
1. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements.
  2. ABS Piping: Join according to ASTM D 2235 and ASTM D 2661 Appendixes.
  3. CPVC Piping: Join according to ASTM D 2846/D 2846M Appendix.
  4. PVC Pressure Piping: Join schedule number ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.
  5. PVC Nonpressure Piping: Join according to ASTM D 2855.
  6. PVC to ABS Nonpressure Transition Fittings: Join according to ASTM D 3138 Appendix.
- J. Plastic Pressure Piping Gasketed Joints: Join according to ASTM D 3139.
- K. Plastic Nonpressure Piping Gasketed Joints: Join according to ASTM D 3212.
- L. PE Piping Heat-Fusion Joints: Clean and dry joining surfaces by wiping with clean cloth or paper towels. Join according to ASTM D 2657.
1. Plain-End Pipe and Fittings: Use butt fusion.
  2. Plain-End Pipe and Socket Fittings: Use socket fusion.
- M. Fiberglass Bonded Joints: Prepare pipe ends and fittings, apply adhesive, and join according to pipe manufacturer's written instructions.

### 3.4 PIPING CONNECTIONS

- A. Make connections according to the following, unless otherwise indicated:
1. Install unions, in piping NPS 2 (DN 50) and smaller, adjacent to each valve and at final connection to each piece of equipment.
  2. Install flanges, in piping NPS 2-1/2 (DN 65) and larger, adjacent to flanged valves and at final connection to each piece of equipment.

3. Dry Piping Systems: Install dielectric unions and flanges to connect piping materials of dissimilar metals.
4. Wet Piping Systems: Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

### 3.5 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

- A. Install equipment to allow maximum possible headroom unless specific mounting heights are not indicated.
- B. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.
- C. Install mechanical equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.
- D. Install equipment to allow right of way for piping installed at required slope.

### 3.6 PAINTING

- A. Painting of mechanical systems, equipment, and components is specified in Division 9 Section "[**Painting (Consumer Line Products)**] [**Painting (Professional Line Products)**]."
- B. Damage and Touchup: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

### 3.7 ERECTION OF METAL SUPPORTS AND ANCHORAGES

- A. Refer to Division 5 Section "Metal Fabrications" for structural steel.
- B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor mechanical materials and equipment.
- C. Field Welding: Comply with AWS D1.1.

### 3.8 ERECTION OF WOOD SUPPORTS AND ANCHORAGES

- A. Cut, fit, and place wood grounds, nailers, blocking, and anchorages to support, and anchor mechanical materials and equipment.
- B. Select fastener sizes that will not penetrate members if opposite side will be exposed to view or will receive finish materials. Tighten connections between members. Install fasteners without splitting wood members.

- C. Attach to substrates as required to support applied loads.

### 3.9 GROUTING

- A. Mix and install grout for mechanical equipment base bearing surfaces, pump and other equipment base plates, and anchors.
- B. Clean surfaces that will come into contact with grout.
- C. Provide forms as required for placement of grout.
- D. Avoid air entrapment during placement of grout.
- E. Place grout, completely filling equipment bases.
- F. Place grout on concrete bases and provide smooth bearing surface for equipment.
- G. Place grout around anchors.
- H. Cure placed grout.

END OF SECTION 15050

## SECTION 15052

### COMMON WORK RESULTS FOR GENERAL PIPING

#### PART 1 GENERAL

##### 1.01 SUMMARY

- A. Section includes: Basic materials and methods for metallic and plastic piping systems.

##### 1.02 REFERENCES

- A. American Society of Mechanical Engineers (ASME):
  1. B16.5 - Pipe Flanges and Flanged Fittings: NPS 1/2 Through 24.
  2. B16.47 - Large Diameter Steel Flanges: NPS 26 Through NPS 60 Metric/Inch Standard.
- B. American Water Work Association (AWWA):
  1. C207 - Standard for Steel Pipe Flanges for Waterworks Services-Size 4 In. Through 144 In.
- C. ASTM International (ASTM):
  1. A193 - Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications.
  2. A194 - Standard Specification for Carbon Steel, Alloy Steel, and Stainless Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both.
  3. A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 PSI Tensile Strength.
  4. A563 - Standard Specification for Carbon and Alloy Steel Nuts.
  5. F37 - Standard Test Methods for Sealability of Gasket Materials.
  6. F2329 - Standard Specification for Zinc Coating, Hot-Dip, Requirements of Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners.
- D. NSF International (NSF).

##### 1.03 DEFINITIONS

- A. Buried pipes: Pipes that are buried in the soil with or without a concrete pipe encasement.
- B. Exposed pipe: Pipes that are located above ground, or located inside a structure, supported by a structure, or cast into a concrete structure.
- C. Underground pipes: Buried pipes - see A. above.
- D. Underwater pipes: Pipes below the top of walls in basins or tanks containing water.
- E. Wet wall: A wall with water on at least 1 side.

#### PART 2 PRODUCTS

##### 2.01 GENERAL

- A. Materials as specified in Section 01600 - Product Requirements including special requirements for materials in contact with drinking water.

## 2.02 ESCUTCHEONS

- A. Material: Chrome-plated steel plate.
- B. Manufacturers: One of the following or equal:
  - 1. Dearborn Brass Co., Model Number 5358.
  - 2. Keeney Manufacturing Co., Model Number 102 or Number 105.

## 2.03 LINK TYPE SEALS

- A. Characteristics:
  - 1. Modular mechanical type, consisting of interlocking neoprene or synthetic rubber links shaped to continuously fill the annular space between the pipe and wall opening.
  - 2. Links to form a continuous rubber belt around the pipe.
  - 3. Provide a nylon polymer pressure plate with Type 316 stainless steel hardware. Isolate pressure plate from contact with wall sleeve.
  - 4. Hardware to be Type 316 stainless steel.
    - a. Provide anti-galling lubricant for threads.
- B. One of the following or equal:
  - 1. Link-Seal.
  - 2. Pipe Linx.

## 2.04 FLANGE BOLTS

- A. General:
  - 1. Provide a washer for each nut. Washer shall be of the same material as the nut.
  - 2. Nuts shall be Heavy hex-head.
  - 3. Cut and finish flange bolts to project a maximum of 1/4-inch beyond outside face of nut after assembly.
  - 4. Tap holes for cap screws or stud bolts when used.
  - 5. Lubricant for stainless steel bolts and nuts:
    - a. Chloride-free.
    - b. Manufacturers: One of the following or equal: 1) Huskey FG-1800 Anti-Seize.
    - 2) Weicon Anti-Seize High-Tech.
- B. For ductile iron pipe:
  - 1. On exposed pipes with pressures equal to or less than 150 psig:
    - a. Bolts: ASTM A307, Grade B.
    - b. Nuts: ASTM A563, Grade A.
    - c. Bolts and Nuts: Hot-dip galvanized in accordance with ASTM F2329.
  - 2. On exposed pipes with pressures greater than 150 psig:
    - a. Bolts: ASTM A193, Grade B.
    - b. Nuts: ASTM A194, Grade 2H.
    - c. Bolts and nuts: Hot-dip galvanized in accordance with ASTM F2329.



3. On underwater pipes and pipes adjacent to wet walls:
    - a. Bolts: ASTM A193, Grade B8M.
    - b. Nuts: ASTM A194, Grade 8M.
  4. On buried pipes:
    - a. Bolts: ASTM A193, Grade B8M.
    - b. Nuts: ASTM A194, Grade 8M for nuts.
- C. Plastic pipe:
1. On exposed pipes:
    - a. Bolts: ASTM A307, Grade B.
    - b. Nuts: ASTM A563, Grade A.
    - c. Bolts and Nuts: Hot-dip galvanized in accordance with ASTM F2329.
  2. On underwater pipes and pipes adjacent to wet walls:
    - a. Bolts: ASTM A193, Grade B8M.
    - b. Nuts: ASTM A194, Grade 8M.
- D. Steel pipe:
1. On exposed pipes:
    - a. For ASME B16.5 Class 150 flanges and AWWA C207 Class D flanges:
      - 1) Bolts: ASTM A307, Grade B.
      - 2) Nuts: ASTM A563, Grade A.
      - 3) Bolts and Nuts: Hot-dip galvanized in accordance with ASTM F2329.
    - b. For ASME B16.5 and B16.47 Class 300 flanges and AWWA C207 Class E and F flanges:
      - 1) Bolts: ASTM A193, Grade B7. 2) Nuts: ASTM A194, Grade 2H.
  2. On underwater pipes and pipes adjacent to wet walls:
    - a. Bolts: ASTM A193, Grade B8M.
    - b. Nuts: ASTM A194, Grade 8M.

## 2.05 GASKETS

- A. General.
1. Gaskets shall be suitable for the specific fluids, pressure, and temperature conditions.
- B. Gaskets for non-steam cleaned ductile iron and steel piping:
1. Suitable for pressures equal to and less than 150 pounds per square inch gauge, temperatures equal to and less than 250 degrees Fahrenheit, and raw sewage service.
  2. Gasket material:
    - a. Neoprene elastomer with minimum Shore A hardness value of 70.
    - b. Reinforcement: Cloth or synthetic fiber.
    - c. Thickness: Minimum 3/32-inch thick for less than 10-inch pipe; minimum 1/8-inch thick for 10-inch and larger pipe.
  3. Manufacturers: One of the following or equal:
    - a. Pipe less than 48 inches in diameter: 1) Garlock, Style 7797. 2) John Crane, similar product.

- b. Pipe 48 inches in diameter and larger: 1) Garlock, Style 3760.
    - 2) John Crane, similar product.
- C. Gaskets for non-steam cleaned grooved end ductile iron and steel piping:
  - 1. Suitable for pressures equal to the encapsulating coupling or flange adapter.
  - 2. Material: Pressure responsive elastomer.
    - a. Ductile iron piping: FlushSeal® type.
      - 1) Halogenated Butyl: Grade M; for temperatures to 200 degrees Fahrenheit.
      - 2) Nitrile: Grade S; for temperatures to 180 degrees Fahrenheit.
    - b. Steel piping:
      - 1) EPDM: Grade E; for temperatures to 230 degrees Fahrenheit.
      - 2) EPDM-HP: Grade EHP, for temperatures to 250 degrees Fahrenheit. 3) Nitrile: Grade T, for temperatures to 180 degrees Fahrenheit.
  - 3. Gaskets shall be verified as suitable for the intended service.
    - a. Temperature ratings may vary depending on the fluid/media.
  - 4. Gaskets shall be of the same manufacturer as the encapsulating couplings/flange adapters.
- D. Gaskets for steam cleaned non glass-lined ductile iron and steel piping:
  - 1. Suitable for pressures equal to and less than 150 pounds per square inch gauge, temperatures equal to and less than 360 degrees Fahrenheit, and raw sewage service.
  - 2. Material:
    - a. Neoprene elastomer, compressed, non-asbestos fiber reinforcement.
  - 3. Manufacturers: One of the following or equal:
    - a. Garlock, Bluegard 3300.
    - b. John Crane, similar product.
- E. Gaskets for steam cleaned glass lined ductile iron piping:
  - 1. Suitable for pressures equal to and less than 150 pounds per square inch gauge, temperatures equal to and less than 360 degrees Fahrenheit, and sludge service.
  - 2. Material:
    - a. Teflon gasketing with 1/16-inch sheet thickness each side (1/8-inch total sheet thickness), filled with corrugated or perforated Type 316 stainless steel ring and non-asbestos filler material with minimum 5/16-inch overall thickness.
  - 3. Manufacturers: One of the following or equal:
    - a. Garlock, Style HP3561.
    - b. John Crane, similar product.
- F. Gaskets for flanged joints in polyvinyl chloride and polyethylene piping:
  - 1. Suitable for pressures equal to and less than 150 pounds per square inch gauge, with low flange bolt loadings, temperatures equal to and less than 120 degrees Fahrenheit, and polymer, chlorine, caustic solutions, and other chemicals, except chemicals which liberate free fluorine including fluorochemicals and gaseous fluorine.
  - 2. Material: 0.125-inch thick Viton rubber.
  - 3. Manufacturers: One of the following or equal:
    - a. Garlock.
    - b. John Crane, similar product.
- G. Gaskets for flanged joints in gas or liquefied petroleum gas piping:

1. Liquefied petroleum, propane, and natural gas applications in black steel piping: Suitable for pressures equal to and less than 250 pounds per square inch gauge, temperatures equal to and less than 100 degrees Fahrenheit, and liquefied petroleum gas, propane gas, and natural gas application.
  2. Material:
    - a. Microcellular Teflon outer layers with rigid center layer.
    - b. Sealability in accordance with ASTM F37, less than 0.55 millimeters per hour leakage of iso-octane at 1,000 pounds per square inch gasket load and 9.8 pounds per square inch fluid pressure.
  3. Manufacturers: One of the following or equal:
    - a. Garlock, Style 3545.
    - b. John Crane, similar product.
- H. Gaskets for flanged joints in low pressure air piping:
1. Suitable for pressures equal to and less than 150 pounds per square inch gauge, temperatures equal to and less than 300 degrees Fahrenheit, and compressed air service.
  2. Material: EPDM elastomer, 1/8-inch thick, 60 Shore hardness, smooth surface.
  3. Manufacturers: One of the following or equal:
    - a. Garlock, Style 8314.
    - b. John Crane, similar product.
- I. Gaskets for flanged joints in ductile iron or steel water piping:
1. Suitable for hot or cold water, pressures equal to and less than 150 pounds per square inch gauge, and temperatures equal to and less than 160 degrees Fahrenheit.
  2. Material:
    - a. Neoprene elastomer, compressed, with non-asbestos fiber reinforcement.
  3. Manufacturers: One of the following or equal:
    - a. Garlock, Bluegard 3300.
    - b. John Crane, similar product.
- J. Gaskets for flanged joints in ductile iron or steel drinking water piping meeting NSF requirements:
1. Suitable for hot or cold water, pressures equal to or less than 150 pounds per square inch gauge, and temperatures equal to or less than 160 degrees Fahrenheit.
  2. Material:
    - a. EPDM material with 80 Shore A durometer rating.
  3. Manufacturers: One of the following or equal:
    - a. Garlock, 98206.
    - b. John Crane, similar product.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. General:
1. Piping drawings:
    - a. Except in details, piping is indicated diagrammatically. Not every offset and fitting, or structural difficulty that may be encountered has been indicated on the Drawings referenced in Section 00800. Sizes and locations are indicated on the Drawings.

- b. Perform minor modifications to piping alignment where necessary to avoid structural, mechanical, or other type of obstructions that cannot be removed or changed.
      - 1) Modifications are intended to be of minor scope, not involving a change to the design concept or a change to the Contract Price or Contract Times.
- 2. Piping alternatives:
  - a. Provide piping as specified in this Section, unless indicated on the Drawings or specified otherwise.
  - b. Alternative pipe ratings:
    - 1) Piping with greater pressure rating than specified may be substituted in lieu of specified piping without changes to the Contract Price.
    - 2) Piping of different material may not be substituted in lieu of specified piping.
  - c. Valves in piping sections: Capable of withstanding specified test pressures for piping sections and fabricated with ends to fit piping.
  - d. For grooved joints, use couplings, flange adapters, and fittings of the same manufacturer.
    - 1) The grooved joint manufacturer's factory trained representative shall provide on-site training for Contractor's field personnel.
    - 2) The representative shall periodically visit the jobsite and review Contractor is following best recommended practices in grooved product installation.
    - 3) A distributor's representative is not considered qualified to conduct the training or jobsite visit(s).
  - e. For flanged joints, where 1 of the joining flanges is raised face type, provide a matching raised face type flange for the other joining flange.
- 3. Unless otherwise indicated on the Drawings, piping at pipe joints, fittings, couplings, and equipment shall be installed without rotation, angular deflection, vertical offset, or horizontal offset.

B. Wall and slab penetrations:

- 1. Provide sleeves for piping penetrations through aboveground masonry and concrete walls, floors, ceilings, roofs, unless specified or otherwise indicated on the Drawings.
- 2. For piping 1 inch in nominal diameter and larger, provide sleeves with minimum inside diameters of 1 inch plus outside diameter of piping. For piping smaller than 1 inch in nominal diameter, provide sleeve of minimum twice the outside diameter of piping.
  - a. Arrange sleeves and adjacent joints so piping can be pulled out of sleeves and replaced without disturbing the structure.
  - b. Cut ends of sleeves flush with surfaces of concrete, masonry, or plaster.
  - c. Conceal ends of sleeves with escutcheons where piping runs through floors, walls, or ceilings of finished spaces within buildings.
  - d. Seal spaces between pipes and sleeves with link-type seals when not otherwise specified or indicated on the Drawings.
  - e. Seal openings around piping running through interior walls and floors of chlorine rooms and chlorine storage rooms gastight with synthetic rubber sealing compound.
- 3. Provide flexibility in piping connecting to structures to accommodate movement due to soil settlement and earthquakes. Provide flexibility using details indicated on the Drawings.
- 4. Core drilled openings:

- a. Do not damage or cut existing reinforcing bars, electrical conduits, or other items embedded in the existing concrete without acceptance by Engineer.
  - b. Determine location of reinforcing bars or other obstructions with a non-destructive indicator device.
  - c. Remove dust and debris from hole using compressed air.
- C. Exposed piping:
- 1. Install exposed piping in straight runs parallel to the axes of structures, unless otherwise indicated on the Drawings:
    - a. Install piping runs plumb and level, unless otherwise indicated on the Drawings.
      - 1) Slope plumbing drain piping with a minimum of 1/4-inch per foot downward in the direction of flow.
  - 2. Install exposed piping after installing equipment and after piping and fitting locations have been determined.
  - 3. Support piping: As specified in Sections 15061 - Pipe Supports, 15062 - Preformed Channel Pipe Support System, and 15063 - Non-Metallic Pipe Support System:
    - a. Do not transfer pipe loads and strain to equipment.
  - 4. In addition to the joints indicated on the Drawings, provide unions, flexible couplings, flanged joints, flanged coupling adapters, and other types of joints or means which are compatible with and suitable for the piping system, and necessary to allow ready assembly and disassembly of the piping.
  - 5. Assemble piping without distortion or stresses caused by misalignment:
    - a. Match and properly orient flanges, unions, flexible couplings, and other connections.
    - b. Do not subject piping to bending or other undue stresses when fitting piping.
    - c. Do not correct defective orientation or alignment by distorting flanged joints or subjecting flange bolts to bending or other undue stresses.
    - d. Flange bolts, union halves, flexible connectors, and other connection elements shall slip freely into place.
    - e. Alter piping assembly to fit, when proper fit is not obtained.
    - f. Install eccentric reducers or increasers with the top horizontal for pump suction piping.
- D. Buried piping:
- 1. Bury piping with minimum 3-foot cover without air traps, unless otherwise indicated on the Drawings.
  - 2. Where 2 similar services run parallel to each other, piping for such services may be laid in the same trench.
    - a. Lay piping with sufficient room for assembly and disassembly of joints, for thrust blocks, for other structures, and to meet separation requirements of public health authorities having jurisdiction.
  - 3. Laying piping:
    - a. Lay piping in finished trenches free from water or debris. Begin at the lowest point with bell ends up slope.
    - b. Place piping with top or bottom markings with markings in proper position.
    - c. Lay piping on an unyielding foundation with uniform bearing under the full length of barrels.
    - d. Where joints require external grouting, banding, or pointing, provide space under and immediately in front of the bell end of each section laid with sufficient shape and size for grouting, banding, or pointing of joints.

- e. At the end of each day's construction, plug open ends of piping temporarily to prevent entrance of debris or animals.
  - 4. Concrete encase all buried pipe installed under concrete slabs or structures.
- E. Venting piping under pressure:
- 1. Lay piping under pressure flat or at a continuous slope without air traps, unless otherwise indicated on the Drawings.
  - 2. Install plug valves as air bleeder cocks at high points in piping.
    - a. Provide 1-inch plug valves for water lines, and 2-inch plug valves for sewage and sludge lines, unless otherwise indicated on the Drawings.
  - 3. Provide additional pipe taps with plug cocks and riser pipes along piping as required for venting during initial filling, disinfecting, and sampling.
  - 4. Before piping is placed into service, close plug valves and install plugs. Protect plugs and plug valves from corrosion in as specified in Section 09960 - HighPerformance Coatings.
- F. Restraining piping:
- 1. Restrain piping at valves and at fittings where piping changes direction, changes sizes, and at ends:
    - a. When piping is underground, use concrete thrust blocks, mechanical restraints, or push-on restraints.
    - b. When piping is aboveground or underwater, use mechanical or structural restraints.
    - c. Determine thrust forces by multiplying the nominal cross-sectional area of the piping by design test pressure of the piping.
  - 2. Provide restraints with ample size to withstand thrust forces resulting from test pressures:
    - a. During testing, provide suitable temporary restraints where piping does not require permanent restraints.
  - 3. Place concrete thrust blocks against undisturbed soil.
  - 4. Place concrete so piping joints, fittings, and other appurtenances are accessible for assembly and disassembly.
  - 5. Provide underground mechanical restraints where specified in the Piping Schedule.
- G. Connections to existing piping:
- 1. Expose existing piping to which connections are to be made with sufficient time to permit, where necessary, field adjustments in line, grade, or fittings:
    - a. Protect domestic water/potable water supplies from contamination:
      - 1) Make connections between domestic water supply and other water systems in accordance with requirements of public health authorities.
      - 2) Provide devices approved by Owner of domestic water supply system to prevent flow from other sources into the domestic supply system.
  - 2. Make connections to existing piping and valves after sections of new piping to be connected have been tested and found satisfactory.
  - 3. Provide sleeves, flanges, nipples, couplings, adapters, and other fittings needed to install or attach new fittings to existing piping and to make connections to existing piping.
  - 4. For flanged connections, provide stainless steel bolts with isolation bushings and washers, and full-face flange gaskets.
- H. Connections to in-service piping:
- 1. As specified in Section 01140 - Work Restrictions.

- I. Connections between ferrous and nonferrous metals:
  - 1. Connect ferrous and nonferrous metal piping, tubing, and fittings with dielectric couplings especially designed for the prevention of chemical reactions between dissimilar metals.
  - 2. Nonferrous metals include aluminum, copper, and copper alloys.
- J. Flanged connections between dissimilar metals such as ductile iron pipe and steel pipe:
  - 1. Provide stainless steel bolts with isolation bushings and washers, and full-face flange gaskets.

### 3.02 CLEANING

- A. Piping cleaning:
  - 1. Upon completion of installation, clean piping interior of foreign matter and debris.
  - 2. Perform special cleaning when required by the Contract Documents.
- B. Cleaning potable water piping:
  - 1. Flush and disinfect potable water piping as specified in Section 01758 - Water Main Testing, Disinfection, and Dechlorination.
- C. Cleaning and drying of dry chlorine gas or liquid chlorine piping:
  - 1. Coordinate with Owner and attend a pre-cleaning meeting with Owner before cleaning chlorine piping.
  - 2. Work with Owner during cleaning and conform to plant operational and shut down constraints.
  - 3. Clean chlorine pressure piping in accordance with the requirements of the Chlorine Institute-Pamphlet 6 and meet the following requirements.
  - 4. Do not put water into any of the chlorine gas or liquid piping.
  - 5. Blow chlorine piping clean of loose debris with compressed air at 4,000 fpm.
  - 6. Clean chlorine piping by pulling clean cloths saturated with an approved solvent through piping:
    - a. Do not use hydrocarbons or alcohols that may react with chlorine.
    - b. Use solvents in accordance with manufacturer's safety recommendations to avoid serious physiological effects.
    - c. Remove all dirt and debris of any nature from the chlorine lines.
  - 7. Disassemble and clean valves and equipment that have oil residues before installation.
  - 8. Dry piping immediately before effecting final connections for service.
    - a. Keep piping sealed to prevent moisture from entering chlorine piping.
    - b. Supply compressors, air dryers, and dew point testing equipment necessary to dry and test for dryness the new chlorination system piping.
    - c. Drying procedure:
      - 1) Pass dry commercial grade nitrogen gas that has a dew point of minus 40 degrees Fahrenheit or less through the piping until exhausted air at three Engineer-approved locations has a dew point of minus 40 degrees Fahrenheit.
      - 2) Confirm dew point with a hygrometer.
      - 3) Allow several hours for drying piping.
      - 4) Re-dry the chlorine piping system in the event subsequent work opens any part of the system to the atmosphere.
- D. Cleaning chlorine piping:

1. Clean chlorine piping by pulling clean cloths saturated an approved solvent through piping:
  - a. Do not use hydrocarbons or alcohols that may react with chlorine.
  - b. Use solvents in accordance with manufacturer's safety recommendations to avoid serious physiological effects.
2. Disassemble and clean valves and equipment that have oil residues before installation.
3. Dry piping immediately before effecting final connections for service.
  - a. Keep piping kept sealed to prevent moisture from entering chlorine piping.
  - b. Drying procedure shall be as follows:
    - 1) Pass steam through piping from the high end until piping is thoroughly heated. While steaming, allow condensate and foreign matter to drain out.
    - 2) Stop steaming and drain pockets and low points.
    - 3) While piping is hot, blow dry air through piping until piping is dry.
      - a) Use dry air with a dew point of minus 40 degrees Fahrenheit or below.
    - 4) Continue blowing dry air through piping until exhausted air has a dew point of minus 30 degrees Fahrenheit or below. 5) Allow several hours for drying piping.

E. Cleaning air piping:

1. Perform special cleaning of filtered air piping from the intake clean air plenums to the discharge points and high-pressure air piping.
  - a. Protect surfaces from contamination.
2. Special cleaning shall include wire brushing, power tool cleaning, wiping down with lint-free cloths, brooming, and vacuuming to remove rust, scale, weld spatter, dust, dirt, oil, and other matter deleterious to operation of the air system:
  - a. Do not sandblast installed piping.
3. To the greatest extent possible, clean piping immediately prior to final closure of piping systems:
  - a. Enter piping, clean and wipe down surfaces, and vacuum out residue.
  - b. Clean surfaces not accessible to this cleaning operation after installation within 6 hours preceding installation.
4. Subsequent to cleaning, protect surfaces from contamination by dust, dirt, construction debris, and moisture, including atmospheric moisture:
  - a. Whether or not pipe upstream has been cleaned, temporarily seal openings in partially completed work except when installation is actively in progress.
  - b. When installation is actively in progress, seal openings at the end of each day's construction or when construction is temporarily stopped.
5. Suspend cleaning and seal openings when inclement weather, including dust storms, is imminent.
6. Use clean, dry air for testing the piping and other elements of the system.
7. Prior to introduction of air to the system, blow piping clean.
  - a. Blow with maximum discharge rate possible for minimum 4 hours, using new blowers or compressors and filters.
8. Clean surfaces that become contaminated prior to acceptance.

F. Cleaning steam piping:

1. Thoroughly clean steam piping, boiler feed water piping, and condensate return piping by flushing with water.
  - a. Conduct cleaning operation after piping connections are completed and after piping has successfully passed pressure test.
2. Utilize potable quality water, softened to remove hardness, for flushing water.



- a. Provide temporary facilities and chemicals to add corrosion control additives to flushing water.
  - b. Utilize recommendations of boiler manufacturer for type and quantity of corrosion control additives.
  - c. When corrosion control additives are to be disposed of within treatment plant, use additives that are non-toxic to the treatment process.
3. When the boiler system includes a feed water softening system, this system may be utilized as source of flushing water.
    - a. Provide adequately sized temporary storage tank when capacity of feed water softening system is less than required flow rate for flushing.
  4. Flush piping with water in sufficient quantities to produce a flow velocity of 6 feet per second in the main pipe and branch lines.
  5. Continue flushing until at least twice the volume of pipe has been flushed.
  6. Disconnect steam traps and piping less than 1/2-inch in nominal diameter prior to flushing operation.
    - a. After flushing operation is completed, drain entire system, and reconnect piping and steam traps.
  7. When cleaning operation is complete, remove temporary piping, pumps, tanks, and chemicals used to accomplish pipe cleaning.
  8. Prior to beginning cleaning operation, submit plan for the cleaning operation. Include details of equipment, procedures, and MSDS sheets for chemicals to be utilized.
- G. Conduct pressure and leak test, as specified.

### **3.03 PIPING SCHEDULE**

- A. As shown on the drawings referenced in Section 00800.

END OF SECTION

**SECTION 15121**  
**PIPE COUPLINGS**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Section includes:
1. Pipe couplings for ductile iron piping.
  2. Pipe couplings for carbon steel piping.
  3. Pipe couplings for stainless steel piping.

**1.02 REFERENCES**

- A. American National Standards Institute (ANSI).
- B. American Society of Mechanical Engineers (ASME):
1. B31.1 - Power Piping.
  2. B31.9 - Building Services Piping.
- C. American Water Works Association (AWWA):
1. C111 - Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
  2. C207 - Standard for Steel Pipe Flanges for Waterworks Service - Sizes 4 In. Through 144 In.
  3. C606 - Standard for Grooved and Shouldered Joints.
- D. ASTM International (ASTM):
1. A36 - Standard Specification for Carbon Structural Steel.
  2. A53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
  3. A193 - Standard Specification for Alloy Steel and Stainless Steel Bolting Materials for High Temperature or High Pressure Service and Other Special Purpose Applications.
  4. A351 - Standard Specification for Castings, Austenitic, for Pressure-Containing Parts.
  5. A449 - Standard Specification for Hex Cap Screws, Bolts and Studs, Steel, Heat Treated, 120/105/9 ksi Minimum Tensile Strength, General Use.
  6. A536 - Standard Specification for Ductile Iron Castings.
  7. A576 - Standard Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality.
  8. D2000 - Standard Classification System for Rubber Products in Automotive Applications.
  9. F593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
- E. NSF International (NSF):
1. 61 - Drinking Water System Components - Health Effects.
  2. 372 - Drinking Water System Components - Lead Content.

**1.03 SUBMITTALS**

- A. Submit as specified in Section 01330 - Submittal Procedures.
- B. Product data:

1. For each product in this Section as applicable:
  - a. Design features.
  - b. Load capacities.
  - c. Material designations by UNS alloy number or ASTM Specification and Grade.
  - d. Data needed to verify compliance with the Specifications.
  - e. Catalog data.
  - f. Clearly mark submittal information to show specific items, materials, and accessories or options being furnished.
- C. Calculations:
  1. Provide calculations in accordance with NSF 372 for materials in contact with drinking water.

#### **1.04 WARRANTY**

- A. Provide warranty as specified in within these Contract Documents.

### **PART 2 PRODUCTS**

#### **2.01 GENERAL**

- A. As specified in Section 01600 - Product Requirements:
  1. Materials in contact with drinking waters: In accordance with NSF 61 and NSF 372.
- B. Known acceptable manufacturers are listed by specific products.
- C. Provide references as specified in this Section by specific product.
- D. Manufacturer's representatives requirements as specified in Section 01757 - Commissioning and this Section by specific product.
- E. Gaskets for flexible couplings and flanged coupling adapters:
  1. Provide gasket materials for piping applications as follows:
    - a. Low-pressure and high-pressure air, steam, hot water: EPDM.
    - b. All other piping applications: Neoprene rubber or Buna-N.
- F. Exterior coatings for underground and submerged applications:
  1. Manufacturers: One of the following or equal:
    - a. Tapecoat Co., Inc., T.C. Mastic.
    - b. Kop-Coat Co., Inc., Bitumastic Number 50.
  2. Thickness: Minimum 0.040 inch.

#### **2.02 PIPE COUPLINGS FOR DUCTILE IRON PIPING**

- A. Dismantling joints:
  1. Manufacturers: One of the following or equal:
    - a. Romac Ind., Inc., Style DJ400.
    - b. Smith-Blair, Inc., Series 975.
  2. Materials:
    - a. Flanged spool: AWWA C207 steel pipe:

- 1) ASTM A53 for sizes 3 inches to 12 inches.
  - 2) ASTM A36 for sizes 14 inches to 72 inches.
    - b. End ring and body:
      - 1) For sizes 3 inches to 12 inches, ductile iron in accordance with ASTM A536.
      - 2) For sizes 14 inches to 72 inches, steel in accordance with ASTM A36 or A53.
    - c. Follower ring: Ductile iron in accordance with ASTM A536.
    - d. Bolts and hex nuts:
      - 1) Aboveground: High strength, low alloy steel in accordance with AWWA C111.
      - 2) Buried and underwater: Type 316 stainless steel bolts in accordance with ASTM F593.
    - e. Tie rods: High tensile steel in accordance with ASTM A193 Grade B7.
  3. Flange design: Class D steel ring flange in accordance with AWWA C207, compatible with ANSI Class 125 and 150 bolt circles.
  4. Coating and lining: Manufacturer's standard fusion bonded epoxy, NSF 61 certified.
- B. Flanged coupling adapters: 12-inch size and smaller:
1. Manufacturers: One of the following or equal:
    - a. Dresser, Inc., Style 227.
    - b. Romac Ind., Inc., Style FCA501.
    - c. Smith-Blair, Inc., Series 912.
  2. Materials:
    - a. Flanged body: Ductile iron in accordance with ASTM A536.
    - b. Follower ring: Ductile iron in accordance with ASTM A536.
    - c. Bolts and hex nuts:
      - 1) Aboveground: High strength, low alloy steel in accordance with AWWA C111.
      - 2) Buried and underwater: Type 316 stainless steel bolts in accordance with ASTM F593.
  3. Flange design: Class D steel ring flange in accordance with AWWA C207 compatible with ANSI Class 125 and 150 bolt circles.
  4. Coating and lining: Manufacturer's standard fusion bonded epoxy, NSF 61 certified.
- C. Flanged coupling adapters: Greater than 12-inch size:
1. Manufacturers: One of the following or equal:
    - a. Dresser, Inc., Style 128-W.
    - b. Romac Ind., Inc., Style FC400.
    - c. Smith-Blair, Inc., Series 913.
  2. Materials:
    - a. Flange and flanged body: Ductile iron or low carbon steel having a minimum yield strength of 30,000 pounds per square inch.
    - b. Follower ring: Low carbon steel having a minimum yield strength of 30,000 pounds per square inch.
    - c. Bolts and hex nuts:
      - 1) Aboveground: High strength, low alloy steel in accordance with AWWA C111.
      - 2) Buried and underwater: Type 316 stainless steel bolts in accordance with ASTM F593.

3. Flange design: Class D steel ring flange in accordance with AWWA C207 compatible with ANSI Class 125 and 150 bolt circles.
4. Coating and lining: Manufacturer's standard fusion bonded epoxy, NSF 61 certified.

D. Flexible couplings:

1. Manufacturers: One of the following or equal:
  - a. Dresser, Inc., Style 253.
  - b. Romac Ind., Inc., Style 501.
  - c. Smith-Blair, Inc., Series 441.
2. Materials:
  - a. Center rings: Ductile iron in accordance with ASTM A536.
  - b. Follower rings: Ductile iron in accordance with ASTM A536.
  - c. Bolts and hex nuts:
    - 1) Aboveground: High strength, low alloy steel in accordance with AWWA C111.
    - 2) Buried and underwater: Type 316 stainless steel in accordance with ASTM F593.
3. Coating and lining: Manufacturer's standard fusion bonded epoxy, NSF 61 certified.
4. Center sleeve dimensions: Provide center sleeves with lengths in accordance with following table:

Nominal Pipe Size	Sleeve Length
3 inch and smaller	Manufacturer's standard
4 inch through 8 inch	7 inches
10 inch through 14 inch	12 inches
Greater than 16 inch	Use steel flexible coupling per Pipe Couplings for Steel Piping

E. Restrained flange coupling adapter:

1. Manufacturers: One of the following or equal:
  - a. Romac Ind., Inc., Style RFCA.
  - b. Star Pipe Products, 3200 StarFlange™.
2. Materials:
  - a. Flange and flanged body: Ductile iron in accordance with ASTM A536.
  - b. Follower ring: Lug type restraint system.
    - 1) Follower ring: Ductile iron in accordance with ASTM A536.
    - 2) Restraining lugs: Ductile iron in accordance with ASTM A536.
      - a) Designed to contact the pipe and apply forces evenly.
      - 3) Restraining bolts:
        - a) Ductile iron in accordance with ASTM A536.
        - b) Bolt heads shall be designed to twist off when the proper torque has been applied.
    - c. Bolts and hex nuts:
      - 1) Aboveground: High strength, low alloy steel in accordance with AWWA C111.
      - 2) Buried and underwater: Type 316 stainless steel bolts in accordance with ASTM F593.
3. Flange design: Class D steel ring flange in accordance with AWWA C207 compatible with ANSI Class 125 and 150 bolt circles.

4. Coating and lining: Manufacturer's standard fusion bonded epoxy, NSF 61 certified.
5. Angular deflection: Restrained flange coupling adapter must allow angular deflection after assembly.

F. Grooved joint couplings:

1. Manufacturers: The following or equal:
  - a. Victaulic Co., Series 31 or equal.
2. Materials:
  - a. Housings: Ductile iron in accordance with ASTM A536.
  - b. Gasket:
    - 1) FlushSeal® type, or equal. Elastomer in accordance with ASTM D2000.
    - 2) Neoprene or BUNA-N.
  - c. Bolts and nuts: Electroplated steel in accordance with ASTM A449.
  - d. Coating: As specified in Section 09960 - High-Performance Coatings
3. For use with rigid or flexible radius grooved components in accordance with AWWA C606.
4. For connection to IPS steel pipe sizes, Victaulic Style 307.

### 2.03 PIPE COUPLINGS FOR CARBON STEEL PIPING

A. Dismantling joints:

1. Manufacturers: One of the following or equal:
    - a. Romac Ind., Inc., Style DJ400.
    - b. Smith-Blair, Inc., Series 975.
  2. Materials:
    - a. Flanged spool:
      - 1) C207 Schedule 40 pipe in accordance with ASTM A53 for sizes 3 inches to 12 inches.
      - 2) Steel for pipe in accordance with ASTM A36 or A53 for sizes 14 inches to 72 inches.
    - b. End ring and body:
      - 1) For sizes 3 inches to 12 inches, ductile iron in accordance with ASTM A536.
      - 2) For sizes 14 inches to 72 inches, steel in accordance with ASTM A36.
  - c. Follower ring: Ductile iron in accordance with ASTM A536 or steel in accordance with ASTM A36 or A576.
  - d. Bolts and hex nuts:
    - 1) Aboveground: High strength, low alloy steel in accordance with AWWA C111.
    - 2) Buried and underwater: Type 316 stainless steel bolts in accordance with ASTM F593.
  - e. Tie rods: High tensile steel in accordance with ASTM A193 grade B7.
3. Flange design: Class D steel ring flange in accordance with AWWA C207 compatible with ANSI Class 125 and 150 bolt circles.
  4. Coating and lining: Fusion bonded epoxy certified in accordance with NSF 61.

B. Flanged coupling adapters:

1. Manufacturers: One of the following or equal:
  - a. Dresser, Inc., Style 128-W.

- b. Romac Ind., Inc., Style FCA501 (10 inch and smaller) or Style FC400 (12 inch and larger).
- c. Smith-Blair, Inc., Series 913.
- 2. Materials:
  - a. Flange and flanged body: Ductile iron or low carbon steel having a minimum yield strength of 30,000 pounds per square inch.
  - b. Follower ring: Low carbon steel having a minimum yield strength of 30,000 pounds per square inch.
  - c. Bolts and hex nuts:
    - 1) Aboveground: High-strength, low-alloy steel in accordance with AWWA C111.
    - 2) Buried and underwater: Type 316 stainless steel bolts in accordance with ASTM F593.
- 3. Flange design: Class D steel ring flange in accordance with AWWA C207 compatible with ANSI Class 125 and 150 bolt circles.
- 4. Coating and lining: Manufacturer's standard fusion bonded epoxy, NSF 61 certified.

C. Flexible couplings:

- 1. Manufacturers: One of the following or equal:
  - a. Dresser, Inc., Style 38.
  - b. Smith-Blair, Inc., Series 411.
  - c. Romac Ind., Inc., Style 511 or Style 400.
- 2. Materials:
  - a. Center sleeve and follower flanges: Ductile iron or low carbon steel having a minimum yield strength of 30,000 pounds per square inch.
  - b. Bolts and hex nuts:
    - 1) Aboveground: High strength, low alloy steel in accordance with AWWA C111.
    - 2) Buried and underwater: Type 316 stainless steel bolts in accordance with ASTM F593.
- 3. Coating and lining: Manufacturer's standard fusion bonded epoxy, NSF 61 certified.
- 4. Center sleeve dimensions: Provide center sleeves with lengths in accordance with following table:

Nominal Pipe Diameter	Sleeve Length
2-1/2 inch and smaller	Manufacturer's standard
3 inch through 6 inch	7 inch
8 inch through 14 inch	7 inch
Greater than 14 inches	10 inch

D. Restrained flange coupling adapters:

- 1. Manufacturers: One of the following or equal:
  - a. Romac Ind., Inc., Style RFCA.
  - b. Star Pipe Products, 3200 StarFlange™.
- 2. Materials:
  - a. Flange and flanged body: Ductile iron in accordance with ASTM A536.
  - b. Follower ring: Lug type restraint system.
    - 1) Follower ring: Ductile iron in accordance with ASTM A536.
    - 2) Restraining lugs: Ductile iron in accordance with ASTM A536.

- a) Designed to contact the pipe and apply forces evenly.
    - 3) Restraining bolts: Ductile iron in accordance with ASTM A536. Bolt heads shall be designed to twist off when the proper torque has been applied.
      - c. Bolts and hex nuts:
        - 1) Aboveground: High-strength, low-alloy steel in accordance with AWWA C111.
        - 2) Buried and underwater: Type 316 stainless steel bolts in accordance with ASTM F593.
  - 3. Flange design: Class D steel ring flange in accordance with AWWA C207 compatible with ANSI Class 125 and 150 bolt circles.
  - 4. Coating and lining: Manufacturer's standard fusion bonded epoxy certified in accordance with NSF 61.
- E. Grooved joint couplings:
  - 1. Model numbers from one manufacturer are shown to indicate type only. Equivalent products of other manufacturers may be submitted for approval.
  - 2. Coating: As specified in Section 09960 - High-Performance Coatings.
  - 3. Sizes through 12 inch:
    - a. Rigid type:
      - 1) Housings shall be cast with offsetting angle-pattern bolt pads to provide rigidity and system support and hanging in accordance with ASME B31.1 and B31.9.
      - 2) 2 inch through 6 inch: Installation-ready, for direct stab installation without field disassembly, with grade EHP gasket rated to plus 250 degrees Fahrenheit.
      - 3) Manufacturers: One of the following or equal:
        - a) Victaulic Style 107.
        - b) Victaulic Zero-Flex Style 07.
      - b. Flexible type:
        - 1) For use in locations where vibration attenuation and stress relief are required.
        - 2) Three flexible couplings may be used in lieu of a flexible connector.
        - 3) The couplings shall be placed in close proximity to the source of the vibration.
        - 4) Manufacturers: The following or equal:
          - a) Victaulic Style 77.
    - c. Flange adapter:
      - 1) Flat face, ductile iron housings with elastomer pressure responsive gasket, for direct connection to ANSI Class 125 or 150 flanged components.
      - 2) Manufacturers: The following or equal:
        - a) Victaulic Style 741.
  - 4. Sizes 14 inch through 24 inch:
    - a. Victaulic AGS series with lead-in chamfer on housing key and wide width FlushSeal® gasket.
    - b. Rigid type:
      - 1) Housing key shall fill the wedge shaped AGS groove and provide rigidity and system support and hanging in accordance with ASME B31.1 and B31.9.
      - 2) Manufacturers: The following or equal:
        - a) Victaulic Style W07.
    - c. Flexible type:



- 1) Housing key shall fit into the wedge shaped AGS groove and allow for linear and angular pipe movement.
- 2) Manufacturers: The following or equal:
  - a) Victaulic Style W77.
- d. Flange adapter:
  - 1) Flat face, ductile iron housings with elastomer pressure responsive gasket, for direct connection to ANSI Class 125 or 150 flanged components.
  - 2) Manufacturers: The following or equal:
    - a) Victaulic Style W741.
5. For sizes 30 inch and larger:
  - a. Manufacturers: The following or equal:
    - 1) Victaulic Style AGS multiple-segment housing may be used.

## 2.04 PIPE COUPLINGS FOR STAINLESS STEEL PIPING

- A. Flexible couplings:
  1. Manufacturers: The following or equal:
    - a. Dresser, Inc., Style 38.
- B. Grooved joint couplings:
  1. Manufacturers: The following or equal:
    - a. Victaulic Co.
  2. Materials:
    - a. Housings:
      - 1) Ductile iron in accordance with ASTM A536.
      - 2) Stainless steel in accordance with ASTM A351.
    - b. Gasket: Elastomer in accordance with ASTM D2000.
    - c. Bolts and nuts:
      - 1) Electroplated steel in accordance with ASTM A449.
      - 2) Stainless steel in accordance with ASTM F593.
  3. Rigid type:
    - a. Victaulic Style 89 and W89 (ductile iron housings).
    - b. Victaulic Style 489 (stainless steel housings).
  4. Flexible type: Victaulic Style 77S.

## PART 3 EXECUTION

### 3.01 INSTALLATION

- A. In underground and underwater installations, coat the exterior of coupling with a protective coating in accordance with manufacturer's instructions.
- B. Joints and flexible connections shall be installed centered with no angular deflection unless otherwise indicated on the Drawings.
- C. Flexible couplings and flange coupling adapters: Install with gap between pipe ends in accordance with the following table unless a greater gap is indicated on the Drawings. Maximum gap tolerance shall be within 1/8 inch.
  1. Install flexible coupling with pipe gap located in middle of center sleeve.

2. Install flanged coupling adapter with end of plain end pipe in middle of flanged coupling body.

Center Ring Length	Gap Dimension and Tolerance
4 inch through 6 inch	3/8 inch
7 inch	5/8 inch
10 inch and greater	7/8 inch

- D. Provide harnesses (tie-downs) for flexible couplings unless otherwise indicated on the Drawings with a written note.

1. Design harnesses (tie-downs) for the test pressures as specified in the Piping Schedule in Section 15052 - Common Work Results for General Piping.

- E. Grooved joint couplings:

1. Grooved ends: Clean and free from indentations, projections, and roll marks in the area from pipe end to groove.
2. Gaskets: Elastomer grade suitable for the intended service, and molded and produced by the coupling manufacturer.

- F. Bolted, split-sleeve couplings:

1. Inspect each coupling to insure that there are no damaged portions of the coupling.
  - a. Pay particular attention to the sealing pad/sealing plate area.
  - b. Before installation, thoroughly clean each coupling of any foreign substance which may have collected thereon and shall be kept clean at all time.
2. Wrenches:
  - a. Conform to manufacturer instructions.
  - b. Bolts and studs shall be tightened so as to secure a uniform gasket compression between the coupling and the body of the pipe with all bolts or studs tightened approximately the same amount.
  - c. Final tightening shall be done by hand (no air impact wrenches) and is complete when the coupling is in uniform contact with the outside surface of the pipe all around the circumference of the pipe.

3. No joint shall be misfit in any plane.
4. On the fixed ends of bolted, split-sleeve couplings, the shoulders shall bear on the restraint rings all around with no visible gap.
5. Ends of piping where coupler are installed shall be smooth and free of defects.
  - a. Remove weld splatter and grind smooth.
  - b. Grind pipe seam welds flush with pipe wall and smooth.

END OF SECTION





## SECTION 15211

### DUCTILE IRON PIPE: AWWA C151

#### PART 1 GENERAL

##### 1.01 SUMMARY

- A. Section includes: Ductile iron pipe, joints, fittings, gaskets, and pipe linings and coatings.

##### 1.02 REFERENCES

- A. American Society of Mechanical Engineers (ASME):
1. B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.
- B. American Water Works Association (AWWA):
1. C104 - Standard for Cement-Mortar Lining for Ductile-Iron Pipe and Fittings.
  2. C105 - Polyethylene Encasement for Ductile-Iron Pipe Systems.
  3. C110 - Standard for Ductile-Iron and Gray-Iron Fittings.
  4. C111 - Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
  5. C115 - Flanged Ductile Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
  6. C150 - Standard for Thickness Design of Ductile-Iron Pipe.
  7. C151 - Standard for Ductile-Iron Pipe, Centrifugally Cast.
  8. C153 - Standard for Ductile-Iron Compact Fittings for Water Service.
  9. C600 - Installation of Ductile Iron Water Mains and Their Appurtenances.
  10. C606 - Standard for Grooved and Shouldered Joints.
- C. American Welding Society (AWS):
1. D11.2 - Guide for Welding Iron Castings.
- D. ASTM International (ASTM):
1. A47 - Standard Specifications for Ferritic Malleable Iron Castings.
  2. A183 - Standard Specifications for Carbon Steel Track Bolts and Nuts.
  3. A536 - Standard Specifications for Ductile Iron Castings.
  4. C283 - Standard Test Methods for Resistance of Porcelain Enameled Utensils to Boiling Acid.
  5. D792 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.
- E. Ductile Iron Pipe Research Association (DIPRA):
1. Thrust Restraint Design Manual.
- F. NACE International (NACE):
1. SP0188 - Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates.
- G. National Association of Pipe Fabricators, Inc. (NAPF):
1. 500-03 - Surface Preparation Standard for Ductile Iron Pipe and Fittings in Exposed Locations Receiving Special External Coatings and/or Special Internal Linings.

- H. Society for Protective Coatings (SSPC):
  - 1. PA-2 - Measurement of Dry Coating Thickness With Magnetic Gages.

### **1.03 SYSTEM DESCRIPTION**

- A. Thrust restraint system design:
  - 1. Design restrained joint thrust restraint system.
  - 2. Determine the length of pipe that must be restrained on each side of the focus of a thrust load in accordance with the procedures and criteria established by the DIPRA Thrust Restraint Design Manual as specified in Piping Schedule in Section 15052 - Common Work Results for General Piping and the following additional criteria:
    - a. Design pressure: Test pressure.
    - b. Laying condition: Type 5 for pipes greater than 16 inches in diameter and Type 2 for pipes less than or equal to 16 inches in diameter in accordance with AWWA C150.
    - c. Soil designation: Silt 1 as defined by DIPRA.
    - d. Unit friction resistance: Based upon polyethylene encasement of pipe.
    - e. Safety factor: 1.5 (for thrust restraint calculations only).

### **1.04 SUBMITTALS**

- A. Submit as specified in Section 01330 - Submittal Procedures.
- B. Product data: As specified in Section 15052 - Common Work Results for General Piping.
- C. Shop drawings:
  - 1. Detailed layout drawings showing alignment of pipes, location of valves, fittings, and appurtenances, types of joints, and connections to pipelines or structures.
  - 2. Thrust restraint systems layouts.
  - 3. Photographs, drawings, and descriptions of fittings, gaskets, couplings, grooving of pipe and fittings, pipe linings, and coatings.
- D. Calculations:
  - 1. Calculations for thrust restraint system design.

### **1.05 QUALITY ASSURANCE**

- A. Pre-installation meeting:
  - 1. Arrange for Coating Manufacturer's Technical Representative to attend preconstruction conferences, and to make periodic visits to factory or shop to inspect surface preparation of pipe, fittings, and accessories; and to inspect application of linings to interior and coatings to exterior of pipe, fittings, and accessories.

### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Block piping and associated fittings for shipment to prevent damage to coatings and linings.
- B. Carefully handle piping and associated fittings during loading, unloading, and installation:
  - 1. Do not drop piping material from cars or trucks.

2. Lower piping by mechanical means.
  3. Do not drop or pound pipe to fit grade.
- C. Protect gaskets and polyethylene encasement from long-term exposure to sunlight.
- D. Store piping, fittings, and other accessories such that they do not accumulate and hold rainwater, dirt, and debris.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURED UNITS**

- A. Ductile iron piping:
1. Manufacturers meeting qualifications as specified in this Section.
  2. Typical type:
    - a. In accordance with AWWA C150 and AWWA C151.
    - b. Pressure class or special thickness class as indicated in the Piping Schedule provided in the Drawings.
    - c. Manufactured from greater than 90 percent recycled material.
  3. Type with screw-on flanges:
    - a. In accordance with AWWA C115 with minimum special thickness Class 53 wall thickness as required for screw-on flanges.
    - b. Special thickness class as indicated in the Piping Schedule as specified in Section 15052 - Common Work Results for General Piping.
    - c. Manufactured from greater than 90 percent recycled material.
  4. Type with grooved couplings:
    - a. Special thickness class as indicated in the Piping Schedule provided in the Drawings.
    - b. Manufactured from greater than 90 percent recycled material.
- B. Joints:
1. Flanged joints:
    - a. Screw-on flanges: Comply with the diameter, thickness, drilling, and other characteristics in accordance with ASME B16.1. In addition, comply with the following requirements:
      - 1) Ductile iron.
      - 2) Long hub, threaded, and specially designed for ductile iron pipe.
      - 3) After attaching to pipe, machine flange face to make pipe end and flange even and perpendicular to the axis of the pipe.
    - b. Bolt holes on flanges: 2-holed and aligned at both ends of pipe.
    - c. Cap screw or stud bolt holes: Tapped.
    - d. Bolts and nuts: As specified in Section 15052 - Common Work Results for General Piping.
    - e. Gaskets: Standard styrene butadiene copolymer (SBR) unless specified otherwise in Section 15052 - Common Work Results for General Piping.
  2. Grooved joints: In accordance with AWWA C606, as complemented and modified below, radius-cut type, with following components:

- a. Couplings: Rigid type, cast from ductile iron in accordance with ASTM A536, Grade 65-45-12, or malleable iron in accordance with ASTM A47, Grade 32510.
  - b. Bolts and nuts: In accordance with ASTM A183, Grade 2.
  - c. Gaskets: Capable of being applied on surface of piping with cavities to provide for an improved seal with the internal piping pressure. Material to be used for following services:
    - 1) For liquid service: NBR.
    - 2) For air service: Fluoroelastomer.
    - 3) For hot water service: EPDM.
  - d. Fittings: In accordance with AWWA C606, rigid radius-cut groove:
    - 1) Center-to-center dimensions: In accordance with AWWA C110.
    - 2) Wall thickness and other characteristics: In accordance with AWWA C606.
  - e. Flanged unit connections: Flanged to grooved joint adapters or a long enough spool with one end flanged and the other end grooved to prevent interference with the operation of adjacent valves, pumps, or other items.
3. Mechanical joints: In accordance with AWWA C111.
  4. Push-on rubber gasket joints: In accordance with AWWA C111.
  5. Integrally restrained mechanical joints:
    - a. Application:
      - 1) Where designation Mech Rest.
      - 2) Mechanical joint as indicated in the Piping Schedule provided in the Drawings, supply a restrained mechanical joint piping system, which includes restrained mechanical joints where necessary based upon thrust calculations.
      - 3) Standard mechanical joints as specified above can be used where thrust calculations demonstrate restraint is not required.
    - b. Design:
      - 1) Integral retainer weldment type or lugged type joint with Type 304 stainless steel rods and nuts.
      - 2) Restrained mechanical joints of the configuration which utilizes a gripping or friction force for restraint will not be acceptable.
    - c. Manufacturers: Where restrained mechanical joints are required, use one of the following or equal:
      - 1) American Cast Iron Pipe Co., MJ Coupled Joint.
      - 2) Pacific States Cast Iron Pipe Co., Lock Mechanical Joint.
      - 3) U.S. Pipe, Bolt-Lok.
      - 4) U.S. Pipe, Mech-Lok.
  6. Mechanical wedge action joint restraints:
    - a. Manufacturers: One of the following or equal: 1) EBAA Iron, Inc., Megalug® Series 1100. 2) Star Pipe Products, Split Stargrip Series 3000. 3) Sigma Corp., One-Lok Model SLDE.
    - b. Materials:
      - 1) Gland body: Ductile iron in accordance with ASTM A536.
      - 2) Wedges and wedge actuating components: Ductile iron in accordance with ASTM A536.
        - a) Wedges shall be heat treated to a minimum of 370 BHN.
      - 3) Actuating bolts and nuts: Ductile iron in accordance with ASTM A536.
        - a) Provide torque-limiting twist off components to ensure proper installation.
    - c. Coatings:
      - 1) Provide manufacturer applied coating system.
      - 2) Manufacturers: One of the following or equal:
        - a) EBAA Iron Inc., Mega-Bond.



- b) Star Pipe Products, Star-Bond.
    - c) Sigma Corp., Corrsafe™ Electro-deposition coating.
  - d. Working pressure:
    - 1) Shall include a minimum safety factor of 2:1.
    - 2) For sizes 3- through 16-inch: 350 pounds per square inch.
    - 3) For sizes 18- through 48-inch: 250 pounds per square inch.
  - e. Restraint shall consist of multiple gripping wedges incorporated into a follower gland meeting the requirements of AWWA C111.
  - f. Restraint shall allow post assembly angular deflection that is a minimum of 50 percent of the angular deflection allowed by the mechanical joint.
  - g. Restraint must be in accordance with applicable requirements of AWWA C110 and AWWA C111 for mechanical joints.
- 7. Integrally restrained push-on joints:
  - a. Application:
    - 1) Where designation restrained push-on as indicated in the Piping Schedule provided in the Drawings , supply a restrained push-on joint piping system, which includes restrained push-on joints where necessary based upon thrust calculations.
    - 2) Standard push-on rubber gasket joints as specified above can be used where thrust calculations demonstrate restraint is not required.
  - b. Design:
    - 1) Restrained push-on joints of the configuration which utilizes a gripping or friction force for restraint will not be acceptable.
    - 2) Suitable for the following working pressures:
      - a) For 4- through 24-inch pipe: 350 pounds per square inch gauge.
      - b) For 30- through 54-inch pipe: 250 pounds per square inch gauge.
  - c. Manufacturers: One of the following or equal: 1) U.S. Pipe, TR Flex.  
2) McWane Ductile, TR Flex.  
3) American Cast Iron Pipe Co., Flex Ring or Lok-Ring.
  - d. Limit buried joints to half the manufacturer's published allowable angular joint deflection for purposes of pipeline alignment and elimination of fittings.
- 8. Push-on joint restraint harnesses:
  - a. Manufacturers: One of the following or equal: 1) EBAA Iron, Inc., Megalug® Series 1700.  
2) Star Pipe Products, Split Stargrip Series 3100S. 3) Sigma Corp., One-Lok Model SLDEH.
  - b. Materials:
    - 1) Restraint and backup ring: Ductile iron in accordance with ASTM A536.
    - 2) Wedges and wedge actuating components: Ductile iron in accordance with ASTM A536.
      - a) Wedges shall be heat treated to a minimum of 370 BHN.
    - 3) Actuating bolts and nuts: Ductile iron in accordance with ASTM A536.
      - a) Provide torque-limiting twist off components to ensure proper installation.
      - 4) Tie rods: Low alloy steel in accordance with AWWA C111.
  - c. Coatings:
    - 1) Provide manufacturer applied coating system.
    - 2) Manufacturers: One of the following or equal:
      - a) EBAA Iron Inc., Mega-Bond.
      - b) Star Pipe Products, Star-Bond.
      - c) Sigma Corp., Corrsafe™ Electro-deposition coating.

- d. Working pressure:
  - 1) Shall include a minimum safety factor of 2:1.
  - 2) For sizes 3- through 16-inch: 350 pounds per square inch.
  - 3) For sizes 18- through 48-inch: 250 pounds per square inch.
- e. Restraint shall consist of a backup ring behind the ductile iron bell and a restraint ring consisting of multiple gripping wedges connected with number and type of tie rods as recommended by the manufacturer.
- f. Restraint shall allow post assembly deflection of a minimum of 50 percent of the deflection capability of the push-on joint.

C. Fittings:

- 1. Ductile iron in accordance with AWWA C110 or AWWA C153.
- 2. Joint type: Same as that of the associated piping as specified in Section 15052 - Common Work Results for General Piping.
- 3. Plain end-to-flanged joint connectors using setscrews are not acceptable.

D. Pipe and fitting linings:

- 1. Cement-mortar lining:
  - a. In accordance with AWWA C104, apply cement-mortar on clean bare metal surfaces. Extend to faces of flanges, ends of spigots, and shoulders of hubs.
  - b. Minimum lining thickness: Standard in accordance with AWWA C104.
  - c. Type of cement: Type II.
- 2. Asphaltic seal coat:
  - a. Apply over cement mortar linings and to outside surface of pipes that will not receive another coating. Apply in accordance with AWWA C151.
- 3. Elastomeric polyurethane (100 percent solids) lining:
  - a. As specified in Section 09960 - High-Performance Coatings.
- 4. Ceramic epoxy lining:
  - a. Manufacturers: One of the following or equal:
    - 1) PROTECTO 401. 2) SP-2000W.
  - b. Material: Amine cured Novolac epoxy containing at least 20 percent by volume of ceramic quartz pigment.
  - c. Minimum dry film thickness (DFT): 40 mills.
  - d. Application:
    - 1) The lining shall only be applied by a manufacturer-authorized representative with no less than 5 years of experience in applying the specified material.
    - 2) The application of the lining shall be preformed in accordance with manufacturer's published specifications.
    - 3) Pipe and fittings shall be delivered to application facility with no interior lining.
    - 4) Interior of pipe shall be abrasive blasted per manufacturer's specifications.
  - e. Coverage:
    - 1) Gasket and spigot ends-on joints: Provide 6 mills minimum and 10 mills maximum coverage using joint compound as specified by the manufacturer for the gasket area and spigot ends.
    - 2) Mechanical joints: Extend lining from spigot end to edge of gauging ring.
    - 3) Number of coats: As recommended by the lining manufacturer.
  - f. Source quality control:

- 1) Test pipe and fitting lining with a magnetic film thickness gauge. Perform testing in accordance with the method outlined in SSPC PA-2 Film Thickness Rating.
- 2) Test lining integrity of pipes using a holiday detection testing instrument set at the voltage as specified by the coating manufacturer:
  - a) Repair all holidays with joint compound in accordance with the recommendations of the coating manufacturer, and re-test.
- 3) Discard piping or reline piping when pinholes or discontinuities are found.
  5. Glass lining:
    - a. Manufacturers: One of the following or equal:
      - 1) Water Works Manufacturing, Ferroch MEH-32 Lining.
      - 2) Vitco Corp., SG-14 Lining.
    - b. Material: Special glasses and inorganic materials suited for lining of sewage, sludge, and scum piping with the following characteristics:
      - 1) Thickness: 0.008 to 0.012 inch.
      - 2) Hardness: 5 to 6 on the Mohs Scale.
      - 3) Density: 2.5 to 3.0 grams per cubic centimeter, measured in accordance with ASTM D792.
      - 4) Thermal shock resistance: Capable of withstanding 350 degrees Fahrenheit change from 430 degrees Fahrenheit to 80 degrees Fahrenheit without crazing, blistering, or spalling.
      - 5) Gloss retention: Capable of retaining gloss after immersion in an 8 percent sulfuric acid solution at 148 degrees Fahrenheit for 10 minutes.
      - 6) Weight loss: Maximum 3 milligrams per square inch when tested in accordance with ASTM C283.
        - c. Fabrication:
          - 1) Use piping that is suitable for glass lining with minimum Class 53 wall thickness after application of glass lining.
          - 2) Machine interior of pipe. Bore or grit blast in accordance with NAPF 500-03 prior to application of glass lining.
          - 3) Screw factory assembled flanges on pipe, align boltholes, and flange faces, unless otherwise specified.
          - 4) Apply lining to surfaces free of chemicals.
          - 5) Place piping in furnaces specially designed for heating piping until glass melts and fuses with an integral molecular bond to the base metal.
- E. Coatings:
  1. Asphalt varnish: Factory applied.
  2. Primer:
    - a. Factory applied for field coating.
    - b. Compatible with materials as specified in Section 09960 - HighPerformance Coatings.

## 2.02 POLYETHYLENE ENCASEMENT

- A. General:
  1. Polyethylene encasement shall be supplied by the pipe manufacturer.
- B. Materials: Supply one of the following polyethylene encasements:

1. 2 layers of linear low-density polyethylene (LLDPE) film, minimum thickness of 8 mils in accordance with AWWA C105; or,
2. Single layer of high-density, cross-laminated polyethylene (HDCLPE) film, minimum thickness of 4 mils in accordance with AWWA C105.
3. Single layer of V-Bio<sup>®</sup> enhanced polyethylene encasement (3 layers of coextruded LLDPE film with anti-microbial additive and volatile corrosion inhibitor infused on the inside surface), meeting all requirements of AWWA C105.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

#### **A. General:**

1. Install ductile iron piping in accordance with AWWA C600, modified as specified in Section 15052 - Common Work Results for General Piping.
2. For underground piping, the trenching, backfill, and compaction: As specified in Section 02318 - Trenching.

#### **B. Polyethylene encasement:**

1. Wrap all buried ductile iron pipe and fittings in 2 layers of loose low density polyethylene wrap or a single layer of high-density polyethylene wrap in accordance with AWWA C105.
2. Polyethylene encasement shall be continuous and terminated neatly at connections to below grade equipment or structures.
3. At wall penetrations, extend encasement to the wall and neatly terminate.
4. At slab penetrations, extend encasement to 2 inches below the top of slab and neatly terminate.
5. When rising vertically in unimproved areas, extend encasement 6 inches above existing grade and neatly terminate.
6. Repair tears and make joints with 2 layers of plastic tape.
7. All work shall be inspected prior to backfilling of pipe and associated items.

1. Install types of joints as specified in the piping schedule provided in Section 15052 - Common Work Results for General Piping.

2. Mechanical joints are not acceptable in above ground applications.

3. Field closure for restrained push-on pipe:

a. Locate field closures in areas where thrust calculations demonstrate restraint is not required.

4. Grooved joints:

a. Install piping with grooved joints where specified in the piping schedule as specified in Section 15052 - Common Work Results for General Piping or indicated on the Drawings.

b. Assemble grooved joints in accordance with manufacturer's published instructions.

c. Support grooved-end pipe in accordance with manufacturer's published instructions.

1) Install at least 1 support between consecutive couplings.

#### **D. Tapping ductile iron pipe:**

1. Direct tapping of ductile iron pipe may be performed but is limited to the following conditions:
  - a. Maximum allowable tap diameter by pipe diameter and pressure class:

Pipe Size (inches)	Pressure Class				
	150	200	250	300	350
	<b>Maximum Allowable Direct Tap Size (inches)</b>				
3	-	-	-	-	3/4
4	-	-	-	-	3/4
6	-	-	-	-	1
8	-	-	-	-	1
10	-	-	-	-	1
12	-	-	-	-	1-1/4
14	-	-	1-1/4	1-1/2	1-1/2
16	-	-	1-1/2	2	2
18	-	-	2	2	2
20	-	-	2	2	2
24	-	2	2	2	2

- b. The maximum allowable tap diameter for pipelines greater than 24 inches is 2 inches.
  - c. 2 layers of 3-mil thread sealant are required to minimize the torque required to effect a watertight connection.
2. Direct tapping of glass lined ductile iron pipe may be performed only when approved in writing by the Engineer. Direct tapping of glass lined pipe shall be performed in accordance with the above conditions for tapping ductile iron pipe in addition to the following conditions:
  - a. Drilling and tapping shall be performed using a hole saw. 1) Use of a large drill bit is not acceptable.
  - b. As the hole saw approaches the glass lining, lessen the inward pressure to avoid excess chipping or cracking of the lining.
  - c. Minor chipping or spalling of the glass lining shall be repaired using an epoxy resin "glass repair kit" provided by the fabricator.
    - 1) Manufacturers: One of the following or equal:
      - a) Devoe - Devran 224 HS.
      - b) Sherwin-Williams Co. - Sher-Tile High Solids Epoxy.
    - 2) Repair kit use is only allowed for areas of damage less than 1/2 inch in diameter.
      - a) Larger areas of damage will require replacement.
    - 3) Surface shall be prepared and repair kit shall be applied in accordance with manufacturer and/or fabricator's instructions.

### 3.02 FIELD QUALITY CONTROL

- A. Testing ductile iron piping:
  - 1. Test as specified in Section 15052 - Common Work Results for General Piping and Section 15956 - Piping Systems Testing.
  - 2. Do not test sections longer than 1/2 mile in total pipe length.
- B. Repair damaged cement mortar lining to match quality, thickness, and bonding of original lining in accordance with AWWA C104.
  - 1. When lining cannot be repaired or repairs are defective, replace defective piping with undamaged piping.
- C. Verify that interior surfaces of glass lined pipe and fittings have continuous coverage:
  - 1. Verify with low voltage wet sponge holiday detector in accordance with NACE SP0188.
  - 2. Discard glass lined ductile iron piping and fittings with voids or casting anomalies. that exceed the maximum non-visible pinholes allowances below:

Diameter	Maximum Pinholes	
	Fittings	Pipe (per 20-foot length of pipe)
4- to 8-inch	3-5	10-12
10- to 18-inch	5-8	18-20
20-inch and Larger	8-10	25-28

- 3. Discard lined piping and fittings found to have pinholes, crazing, or fish scales, which expose the metal substrate.

END OF SECTION



## SECTION 15956

### PIPING SYSTEMS TESTING

#### PART 1 GENERAL

##### 1.01 SUMMARY

- A. Section includes: Test requirements for piping systems.

##### 1.02 REFERENCES

- A. National Fuel Gas Code (NFGC).
- B. American Society of Mechanical Engineers (ASME):
  - 1. B31.1 - Power Piping.
  - 2. B31.3 - Process Piping.
  - 3. B31.8 - Gas Transmission and Distribution Piping Systems. C.

Underwriters Laboratories Inc. (UL).

##### 1.03 TESTING REQUIREMENTS

- A. General requirements:
  - 1. Testing requirements are stipulated in Laws and Regulations; are included in the Piping Schedule in Section 15052 - Common Work Results for General Piping; are specified in the specifications covering the various types of piping; and are specified in this Section.
  - 2. Requirements in Laws and Regulations supersede other requirements of Contract Documents, except where requirements of Contract Documents are more stringent, including higher test pressures, longer test times, and lower leakage allowances.
  - 3. Test plumbing piping in accordance with Laws and Regulations, the plumbing code, as specified in Section 01410 - Regulatory Requirements, and UL requirements.
  - 4. Test natural gas or digester gas piping:
    - a. For less than 125 pounds per square inch gauge working pressure, test in accordance with mechanical code, as specified in Section 01410 - Regulatory Requirements, or the National Fuel Gas Code, whichever is more stringent.
    - b. For 125 pounds per square inch gauge or greater working pressure, test per ASME B31.3 or ASME B31.8, whichever is more stringent.
  - 5. When testing with water, the specified test pressure is considered to be the pressure at the lowest point of the piping section under test.
    - a. Lower test pressure as necessary (based on elevation) if testing is performed at higher point of the pipe section.
- B. Furnish necessary personnel, materials, and equipment, including bulkheads, restraints, anchors, temporary connections, pumps, water, pressure gauges, and other means and facilities required to perform tests.



- C. Water for testing, cleaning, and disinfecting:
  - 1. Water for testing, cleaning, and disinfecting will be provided as specified in Section 01500 - Temporary Facilities and Controls.
- D. Pipes to be tested: Test only those portions of pipes that have been installed as part of this Contract. Test new pipe sections prior to making final connections to existing piping. Furnish and install test plugs, bulkheads, and restraints required to isolate new pipe sections. Do not use existing valves as test plug or bulkhead.
- E. Unsuccessful tests:
  - 1. Where tests are not successful, correct defects or remove defective piping and appurtenances and install piping and appurtenances that comply with the specified requirements.
  - 2. Repeat testing until tests are successful.
- F. Test completion: Drain and leave piping clean after successful testing.
- G. Test water disposal: Dispose of testing water into sanitary sewer in accordance with requirements of federal, state, county, and city regulations governing disposal of wastes in the location of the Project and disposal site.

#### **1.04 SUBMITTALS**

- A. Submit as specified in Section 01330 - Submittal Procedures.
- B. Schedule and notification of tests:
  - 1. Submit a list of scheduled piping tests by noon of the working day preceding the date of the scheduled tests.
  - 2. Notification of readiness to test: Immediately before testing, notify Engineer in writing of readiness, not just intention, to test piping.
  - 3. Have personnel, materials, and equipment specified in place before submitting notification of readiness.

#### **1.05 SEQUENCE**

- A. Clean piping before pressure or leak tests.
- B. Test gravity piping underground, including sanitary sewers, for visible leaks before backfilling and compacting.
- C. Underground pressure piping may be tested before or after backfilling when not indicated or specified otherwise.
- D. Backfill and compact trench, or provide blocking that prevents pipe movement before testing underground piping with a maximum leakage allowance.
- E. Test underground piping before encasing piping in concrete or covering piping with slab, structure, or permanent improvement.

#### **PART 2 PRODUCTS**

Not Used.

## **PART 3 EXECUTION**

### **3.01 TESTING ALIGNMENT, GRADE, AND DEFLECTION**

- A. Alignment and grade:
  - 1. Visually inspect the interior of gravity piping with artificial light, reflected light, or laser beam.
  - 2. Consider inspection complete when no broken or collapsed piping, no open or poorly made joints, no grade changes that affect the piping capacity, or no other defects are observed.
- B. Deflection test:
  - 1. Pull a mandrel through the clean piping section under test.
  - 2. Perform the test not sooner than 30 days after installation and not later than 60 days after installation.
  - 3. Use a 9-rod mandrel with a contact length of not less than the nominal diameter of the pipe within 1 percent plus or minus.
  - 4. Consider test complete when the mandrel can be pulled through the piping with reasonable effort by 1 person, without the aid of mechanical equipment.

### **3.02 AIR TESTING METHOD FOR PRESSURE PIPING**

- A. Air test piping, indicated with "AM" in the Piping Schedule, with air or another nonflammable or inert gas.
- B. Test gas, air, liquefied petroleum gas, liquid chlorine, and chlorine gas piping by the air test method:
  - 1. Test chlorine piping with dry air or nitrogen having a dew point of minus 40 degrees Fahrenheit or less. Supply temporary air dryers as necessary.
- C. Test at pressure as specified in Piping Schedule in Section 15052 - Common Work Results for General Piping:
  - 1. Provide temporary pressure relief valve for piping under test:
    - a. Set at the lesser of 110 percent of the test pressure or 50 pounds per square inch gauge over the test pressure.
  - 2. Air method test pressures shall not exceed 110 percent of the piping maximum allowable working pressure calculated in accordance with the most stringent of ASME B31.1, ASME B31.3, ASE B31.8, or the pipe manufacturer's stated maximum working pressure.
  - 3. Gradually increase test pressure to an initial test pressure equal to the lesser of 1/2 the test pressure or 25 pounds per square inch gauge.
  - 4. Perform initial check of joints and fittings for leakage.
  - 5. Gradually increase test pressure in steps no larger than the initial pressure. Check for leakage; at each step increase until test pressure reached.
  - 6. At each step in the pressure, examine and test piping being air tested for leaks with soap solution.

7. Consider examination complete when piping section under test holds the test pressure for 15 minutes without losses.

### **3.03 TESTING GRAVITY FLOW PIPING**

- A. Test gravity flow piping indicated with "GR" in the Piping Schedule, as follows:
  1. Unless specified otherwise, subject gravity flow piping to the following tests:
    - a. Alignment and grade.
    - b. For plastic piping test for deflection.
    - c. Visible leaks and pressure with maximum leakage allowance, except for storm drains and culverts.
  2. Inspect piping for visible leaks before backfilling.
  3. Provide temporary restraints when needed to prevent movement of piping.
  4. Pressure test piping with maximum leakage allowance after backfilling.
  5. With the lower end plugged, fill piping slowly with water while allowing air to escape from high points. Keep piping full under a slight head for the water at least 24 hours:
    - a. Examine piping for visible leaks. Consider examination complete when no visible leaks are observed.
    - b. Maintain piping with water, or allow a new water absorption period of 24 hours for the performance of the pressure test with maximum leakage allowance.
    - c. After successful completion of the test for visible leaks and after the piping has been restrained and backfilled, subject piping to the test pressure for minimum of 4 hours while accurately measuring the volume of water added to maintain the test pressure:
      - 1) For polyvinyl chloride (PVC) gravity sewer pipe: 25 gallons per day per inch diameter per mile of piping under test:
        - a) Consider the test complete when leakage is equal to or less than the following maximum leakage allowances:
          - (1) For concrete piping with rubber gasket joints: 80 gallons per day per inch of diameter per mile of piping under test:
            - (a) Advise manufacturer of concrete piping with rubber gasket joints of more stringent than normal maximum leakage allowance.
          - (2) For vitrified clay piping: 500 gallons per day per inch of diameter per mile of piping under test.
          - (3) For other piping: 80 gallons per day per inch diameter per mile of piping under test.

### **3.04 TESTING HIGH-HEAD PRESSURE PIPING**

- A. Test piping for which the specified test pressure in the Piping Schedule is 20 pounds per square inch gauge or greater, by the high head pressure test method, indicated "HH" in the Piping Schedule.
- B. General:
  1. Test connections, hydrants, valves, blowoffs, and closure pieces with the piping.

2. Do not use installed valves for shutoff when the specified test pressure exceeds the valve's maximum allowable seat differential pressure. Provide blinds or other means to isolate test sections.
3. Do not include valves, equipment, or piping specialties in test sections if test pressure exceeds the valve, equipment, or piping specialty safe test pressure allowed by the item's manufacturer.
4. During the performance of the tests, test pressure shall not vary more than plus or minus 5 pounds per square inch gauge with respect to the specified test pressure.
5. Select the limits of testing to sections of piping. Select sections that have the same piping material and test pressure.
6. When test results indicate failure of selected sections, limit tests to piping:
  - a. Between valves.
  - b. Between a valve and the end of the piping.
  - c. Less than 500 feet long.
7. Test piping for minimum 2 hours for visible leaks test and minimum 2 hours for the pressure test with maximum leakage allowance.

C. Testing procedures:

1. Fill piping section under test slowly with water while venting air:
  - a. Use potable water for all potable waterlines and where noted on the Piping Schedule.
2. Before pressurizing for the tests, retain water in piping under slight pressure for a water absorption period of minimum 24 hours.
3. Raise pressure to the specified test pressure and inspect piping visually for leaks:
  - a. Consider visible leakage testing complete when no visible leaks are observed.

D. Pressure test with maximum leakage allowance:

1. Leakage allowance is zero for piping systems using flanged, National Pipe Thread threaded and welded joints.
2. Pressure test piping after completion of visible leaks test.
3. For piping systems using joint designs other than flanged, threaded, or welded joints, accurately measure the makeup water necessary to maintain the pressure in the piping section under test during the pressure test period:
  - a. Consider the pressure test to be complete when makeup water added is less than the allowable leakage and no damage to piping and appurtenances has occurred.
  - b. Successful completion of the pressure test with maximum leakage allowance shall have been achieved when the observed leakage during the test period is equal or less than the allowable leakage and no damage to piping and appurtenances has occurred.
  - c. When leakage is allowed, calculate the allowable leakage by the following formula:

$$L = S \times D \times P^{1/2} \times 133,200^{-1}$$

wherein the terms shall mean:

L = Allowable leakage in gallons per hour.

S = Length of the test section in feet.

D = Nominal diameter of the piping in inches.

P = Average observed test pressure in pounds per square inches gauge, at the lowest point of the test section, corrected for elevation of the pressure gauge.

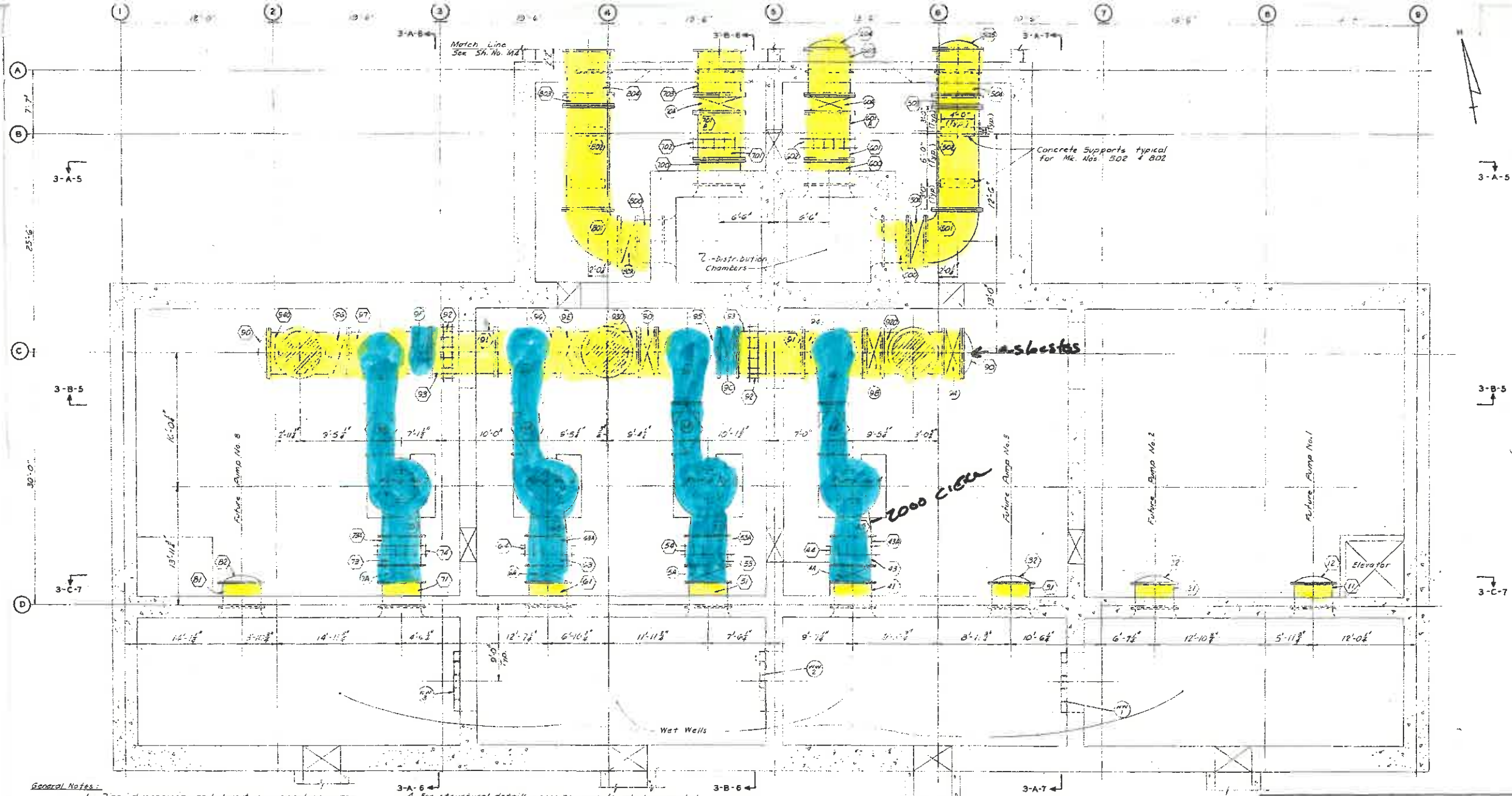
x = The multiplication symbol.

### 3.05 TESTING LOW-HEAD PRESSURE PIPING

- A. Test piping for which the specified test pressure is less than 20 pounds per square inch gauge, by the low head pressure test method, indicated "LH" in the Piping Schedule.
- B. General:
  - 1. Test pressures shall be as scheduled in Section 15052 - Common Work Results for General Piping.
  - 2. During the performance of the tests, test pressure shall not vary more than plus or minus 2 pounds per square inch gauge with respect to the specified test pressure.
  - 3. Test connections, blowoffs, vents, closure pieces, and joints into structures, including existing bell rings and other appurtenances, with the piping.
  - 4. Test piping for minimum 2 hours for visible leaks test and minimum 2 hours for the pressure test with maximum leakage allowance.
- C. Visible leaks test:
  - 1. Subject piping under test to the specified pressure measured at the lowest end.
  - 2. Fill piping section under test slowly with water while venting air:
    - a. Use potable water for all potable waterlines and where noted on the Piping Schedule.
  - 3. Before pressurizing for the tests, retain water in piping under slight pressure for the water absorption period of minimum 24 hours.
  - 4. Raise pressure to the specified test pressure and inspect piping visually for leaks. Consider testing complete when no visible leaks are observed.
- D. Pressure test with maximum leakage allowance:
  - 1. Pressure test piping after completion of visible leaks test.
  - 2. Accurately measure the makeup water necessary to maintain the pressure in the piping section under test during the pressure test period:
    - a. Consider the pressure test to be complete when makeup water added is less than the allowable leakage of 80 gallons per inch of nominal diameter, per mile of piping section under test after 24 hours, and no damage to piping and appurtenances has occurred.
    - b. Successful completion of the leakage test shall have been achieved when the observed leakage is equal or less than the allowable leakage and no damage to piping and appurtenances has occurred.

- E. Optional joint test:
1. When joint testing is allowed by note in the Piping Schedule, the procedure shall be as follows:
    - a. Joint testing will be allowed only for low head pressure piping.
    - b. Joint testing does not replace and is not in lieu of any testing of the piping system or trust restraints.
  2. Joint testing may be performed with water or air.
  3. Joint test piping after completion of backfill and compaction to the top of the trench.
  4. Joint testing with water:
    - a. Measure test pressure at the invert of the pipe. Apply pressure of 4 feet plus the inside diameter of the pipe in water column within 0.20 feet in water column.
    - b. Maintain test pressure for 1 minute.
    - c. Base the allowable leakage per joint on 80 gallons per inch nominal diameter, per mile of piping, per 24 hours equally distributed to the actual number of joints per mile for the type of piping.
    - d. Consider the pressure test to be complete when makeup water added is less than the allowable leakage.
    - e. Successful completion of the joint test with water shall have been achieved when the observed leakage is equal or less than the allowable leakage.
  5. Joint testing with air:
    - a. Apply test pressure of 3 pounds per square inch gauge with a maximum variation of plus 0.20 and minus 0.00 pounds per square inch.
    - b. Maintain test pressure for 2 minutes.
    - c. Consider the pressure test to be complete when the test pressure does not drop below 2.7 pounds per square inch for the duration of the test.

END OF SECTION



**General Notes:**

1. Pipe dimensions and layout are based upon the use of Rensselaer, List II, Gate Valves & Allis Chalmers Rotameters. Valve dimensions shall not exceed those shown on sheet M2. The expense of any revision of related appurtenances shall be born by the Contractor.
2. Slope suction piping from Dresser Coupling down to Wet Well.
3. \* These dimensions subject to change contingent upon pump and cone valve purchased.
4. For structural details, concrete supports, steel supports & blockouts see structural sheets.

PLAN BELOW EL. 726'-0"  
Not to Scale

NO.	DATE	BY	REVISION

**CONFORMING TO  
CONSTRUCTION RECORDS**  
C-266, 105

DESIGNED	
DETAILED	
TRACED	
CHECKED	



**KANSAS CITY, MISSOURI  
POLLUTION CONTROL DEPARTMENT**

**BIG BLUE RIVER SEWAGE PUMPING STATION**

PLANNING STATION PLAN BELOW ELEV. 726'-0"  
PIPING SYSTEM 6" INCH & LARGER

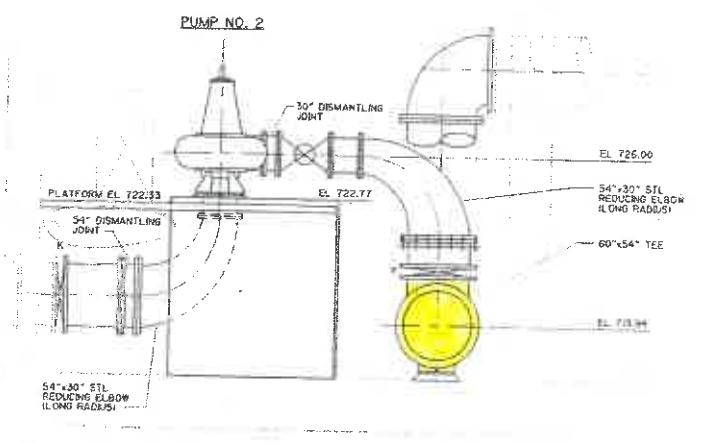
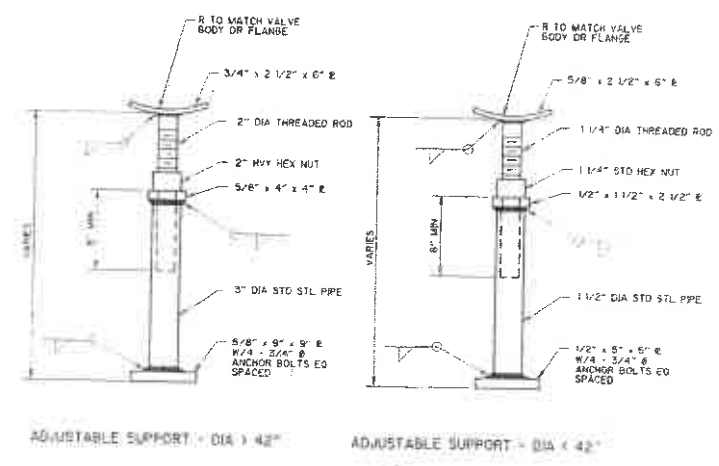
BLACK & VEATCH AND BURNS & MCDONNELL  
CONSULTING ENGINEERS, KANSAS CITY, MO.

P.C.D. CONTRACT  
**5**

DESIGNED: RG  
DATE:      CHECKED:      DATE:      SHEET  
**M3**

original 1961

- NOTES:**
1. CONTRACTOR TO FIELD VERIFY NEW KNIFE GATE VALVE LAYING LENGTH AND MODIFY EXISTING PIPING TO ACCOMMODATE.
  2. INSTALL NEW PIPING AT LOCATION REQUIRED FOR CONNECTION TO EXISTING PIPING. CONTRACTOR SHALL FIELD VERIFY HORIZONTAL AND VERTICAL LOCATIONS, SIZES, FITTINGS, AND MATERIALS PRIOR TO PROCEEDING WITH PIPING SUBMITTALS.



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: AJM  
 DRAWN BY: MLM  
 CHECKED BY: REG  
 DATE: JULY 1999

**CDM** Camp Dresser & McKee Inc.  
 8025 WARD PARKWAY  
 KANSAS CITY, MISSOURI 64114  
 (816) 444-8270

WATER SERVICES DEPARTMENT  
 KANSAS CITY, MISSOURI

**BIG BLUE RIVER SEWAGE PUMPING STATION**

**MODIFIED PIPING SECTIONS & DETAILS**

PROJECT NO. 2078  
 FILE NAME: N0803040

SHEET NO.  
**BM-3**

Pumping



**6.6.2.4 Piping.** Roof drain lines are covered with fiberglass insulation on the linear portions and plaster on the fittings. Small diameter pipes within this building are insulated in the same manner.

Fittings sampled in the basement contained 2 percent asbestos. Therefore, it is concluded that all insulated piping systems in the pump building have asbestos-contaminated plaster on the fittings. Any modifications to these systems require adherence to guidelines for asbestos-containing insulation removal.

Large diameter sewer pipes in the basement are coated with an asbestos/asphaltic paint which is 25 percent asbestos. Nonfriable in its present state, this paint currently poses no hazard. Piping modifications would require that this substance be removed from the connecting bolts. An alternative to sanding or grinding should be found when removing this coating. Vent stacks in this building also are covered with the same asphaltic paint.

#### **6.6.3 Operations and Maintenance**

In order to properly manage all the asbestos containing materials at the Big Blue River Pumping Station, the Kansas City Missouri Water and Pollution Control Department should establish an Operation and Maintenance Plan for the Big Blue River Wastewater Treatment Plant Facilities as discussed in Chapter 7.0.

#### **6.7 Big Blue River Sewage Treatment Plant**

Several structures make up this treatment plant. Each separate building is discussed in the following text.

BULK ASBESTOS ANALYSIS REPORT

Rainbow Environchem, Inc.  
9903 Pflumm Road  
Lenexa, Kansas 66215

Phone 913-894-1616  
Fax 913-894-1888

Client Black & Veatch  
Date Sample Received 5/01/90  
Date of Analysis 5/03/90  
Analyst Smith, Haack

Client Samples KCW 079 thru 146  
Rainbow Activity Number# A90RW0000  
Purchase Order Number# None  
Sample Description Sixty-Eight Bulk Sample

Sample#	Asbestos(Y/N)	Asbestos Type(s)	%Total	Non-Asbestos Materials	%Total
090	NO	Asbestos NO Detected	<1%ND	Binder(25), G.M.(75)	100%
091	YES	Chrysotile 02	2%	Cellulose(53), Binder(30), G.M.(15)	98%
092	YES	Chrysotile 02	2%	Mineral Wool(30), Binder(15), Cotton(8), G.M.(45)	98%
093	YES	Chrysotile 02	2%	Mineral Wool(40), Binder(15), G.M.(43)	98%
094	YES	Chrysotile 25	25%	Cellulose(20), Binder(40) G.M.(15)	75%
095	NO	Asbestos NO Detected	<1%ND	Mineral Wool(30), Binder(25), G.M.(45)	100%
096	YES	Chrysotile 02	2%	Mineral Wool(40), Binder(15), G.M.(43)	
097	YES	Chrysotile 02	2%	Mineral Wool(30), Binder(18), Cotton(10), G.M.(30)	100%
098	YES	Chrysotile 25	25%	Cellulose(25), Binder(40), G.M.(10)	75%
099	NO	Asbestos NO Detected	<1%ND	Mineral Wool(40), Binder(15), G.M.(45)	100%
100	YES	Chrysotile 02	2%	Mineral Wool(20), Binder(33), Foil(10), G.M.(15) Cellulose(20)	98%

LEGEND: G.M. = Granular Minerals  
<1%ND = Less Than One Percent Non-detected

Laboratory Director

Robert H. Fiebert

**City of Kansas City, Missouri, Water and Pollution Control Department  
Wastewater Treatment Facility Asbestos Sample Results Summary  
(Sample Number Order)**

*Note: For complete sample description see Field Completed Data Sheets (Volume I).*

BVWST Sample Number	Total Percent Asbestos	Building	Material Sampled	Precise Sample Location
97	2	Big Blue Pump Station	Fitting mud	3' west of sample 096.
98	25	Big Blue Pump Station	Sewer pipe coating	Pump bldg. basement in vertical pipe near sample 097.
99	0	Big Blue Pump Station	Fitting mud	Pump bldg. basement-north rooms-west side at valving station.
100	2	Big Blue Pump Station	Linear pipe insulation	10' west of sample 099 at damaged material.
101	0	Big Blue Pump Station	Linear pipe insulation	Collected near sample 100.
102	0	Big Blue Pump Station	Fitting mud	Pump bldg. basement-north rooms-west side where elbow comes out of pipe tunnel.
103	4	Big Blue Grit and Preaser Bldg.	Fitting mud	Basement tunnels-where pipes enter tunnel going to pump station.
104	4	Big Blue Grit and Preaser Bldg.	Fitting mud	Basement tunnels-2' south of sample 103.
105	2	Big Blue Grit and Preaser Bldg.	Fitting mud	South end of utility tunnel B, in basement tunnels.
106	3	Big Blue Grit and Preaser Bldg.	Fitting mud	North end of utility tunnel E in basement tunnels. Below boiler room above elbow turning up into boiler room.
107	2	Big Blue Grit and Preaser Bldg.	Fitting mud	15' north of sample 106 at far north end of utility tunnel E.
108	2	Big Blue Grit and Preaser Bldg.	Fitting mud	South end of utility tunnel E in basement at elbows in SE corner.
109	2	Big Blue Grit and Preaser Bldg.	Fitting mud	Boiler room-at northernmost recirculation pump along west wall.
110	2	Big Blue Grit and Preaser Bldg.	Fitting mud	Boiler room-pumps along west wall at discharge elbow.
111	5	Big Blue Grit and Preaser Bldg.	Fitting mud	Boiler room-above entrance doors in SE corner of room. 15' above floor.
112	4	Big Blue Grit and Preaser Bldg.	Fitting mud	2' north of sample 111 at pipe hanger.
113	45	Big Blue Grit and Preaser Bldg.	Boiler breaching	Boiler room at connection to west boiler.
114	45	Big Blue Grit and Preaser Bldg.	Boiler breaching	Boiler room at connection to east boiler.
115	40	Big Blue Grit and Preaser Bldg.	Boiler gasket	At south end of west boiler in boiler room.
116	0	Big Blue Grit and Preaser Bldg.	Boiler insulation	Boiler room, west boiler at feed water connection on west side of boiler.
117	2	Big Blue Sludge Thickener Pump Sta.	Fitting mud	Basement at discharge from unit heater at end of pipe tunnel at damaged elbow.
118	3	Big Blue Sludge Thickener Pump Sta.	Fitting mud	Basement 8' north of sample 117.
119	0	Big Blue Sludge Thickener Pump Sta.	Fitting mud	In 6" elbow at west end of west corridor.
120	0	Big Blue Sludge Thickener Pump Sta.	Fitting mud	West end of west corridor 2'0" above sample 119.

April 21, 2021

Mr. Charles G. Stevens, CWP  
Water Utility Officer  
Kansas City Water  
4800 E. 63<sup>rd</sup> Street  
Kansas City, MO 64130

**Subject: Kansas City Water – Blue River WWTP 60-inch CIP Effluent Piping  
Ultrasonic Thickness (UT) Testing**

Dear Mr. Stevens:

Pure Technologies, a Xylem brand (Pure Technologies), is pleased to offer our services to Kansas City Water for condition assessment of the two (2), 60-inch diameter cast iron pipe (CIP) twin effluent force mains located at the Blue River Wastewater facility. The effluent lines need to be evaluated in order to determine the integrity of the mains and the level of rehabilitation necessary as part of an overall upgrade of the Blue River Facility. Testing options were discussed during our meeting on September 30, 2020, and subsequently, the UT testing method was selected for the force mains.

**Project Challenges:** In that the twin 60-inch cast iron pipelines cannot be taken out of service and contain significant levels of grit; a standard internal robotic inspection is not feasible under normal operating conditions. UT testing at discrete locations will be performed in order to obtain data to quantify the levels of wall degradation at the agreed upon locations along these force mains. Pure Technologies will coordinate the assessment schedule, to the extent possible, with other work and upgrades scheduled during the construction phase.

---

## **Proposed Approach – 60-inch Twin Effluent CIP Force Mains**

The proposed approach for the wall thickness assessment of the twin 60-inch effluent force mains is ultrasonic thickness (UT) wall loss testing. The project scope of services are as follows:

1. Site visit by Project Manager to assess work areas, coordinate work schedule and prepare inspection plan.
2. Transient Pressure Monitoring for 60 days (installed during site visit).
3. UT survey of six (6) pipe lengths from each main with four points per square foot measurements taken of full pipe circumference as agreed to during the planning visit.
4. Twelve (12) pipe segments -10 LF each - approximately 1,884 square feet of surface testing.
5. Post inspection, perform an AWWA C101 design check and one finite element analysis on thinnest wall section observed in the UT survey.
6. Submit a final engineering report documenting results and recommendations.

## Project Approach Overview

The proposed approach for the structural condition assessment of the twin 60-inch cast iron pipe (CIP) consists of transient pressure monitoring; ultrasonic thickness (UT) wall loss testing; a structural design check utilizing the applicable design standard, and a finite element analysis (FEA) model that will indicate whether the most corroded pipe can withstand the internal and external loading it will experience under normal operation conditions.

### *Visual Inspection and Ultrasonic Thickness Testing*



According to information provided by Kansas City Water, the twin Effluent Force Mains consist of cast iron, which has an estimated nominal wall thickness of 1.39 inches based on age. In order to evaluate the condition of the piping, Pure Technologies requests a pipe specification sheet or pipe coupon prior to the inspection. Pure Technologies will perform a visual inspection and UT testing of each of the twin parallel mains. The visual inspection will document the size, shape and location of corrosion damage on the pipe sections, while the UT measurements will document the current remaining thickness of the pipe wall both on a baseline nominal pipe section and at the selected 12 pipe segments as agreed to in the planning document.

Pure Technologies will utilize an Olympus Industrial 45MG UT Gauge with a dual element transducer to gather the wall thickness data. Pure Technologies requests that the areas of corrosion be cleaned. All corrosion prevention coating and any byproducts must be removed prior to UT testing in order to ensure a smooth surface for the highest quality data gathering. Corrosion scaling or debris will also need to be removed to bare metal prior to testing. All preparation work including coating removal and corrosion scaling and debris work is to be performed by Kansas City Water prior to the inspection and is not included in Pure Technologies' scope of services. It is estimated the UT testing work will take two (2) weeks to complete.

### *Transient Pressure Monitoring*



Hydraulic pressure transients (also known as surges or water hammers) occur in pipelines when the pressure conditions in the system change due to variances in pressure or flow (e.g., pump on/off cycles or the rapid closure of a valve). The magnitude of a transient is related to several factors that include, but are not limited to, the flow rate within the pipeline, the time (how fast) in which the change in steady-state condition occurs, and a pipe's hoop stiffness. During a transient event, the kinetic energy within the pipeline (velocity of the water), is converted into potential energy (pressure in the pipe) and strain energy (deformation/strain in the pipe wall) by the propagation of transient pressure waves. A transient

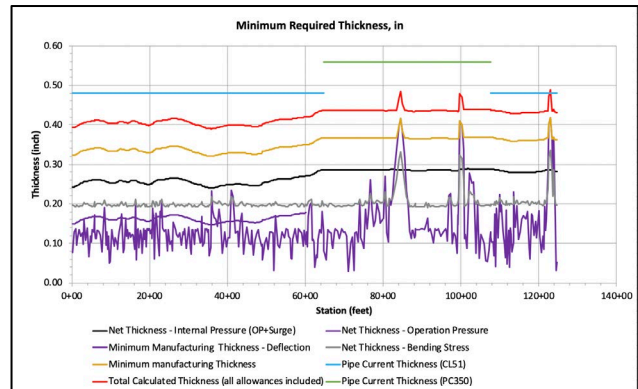
pressure wave can travel through the pipeline at speeds greater than 3,000 feet per second and can cause damaging pressure events and vacuum conditions, which can lead to permanent damage within the pipe wall, and failure within the pipe system.

Traditional pressure monitors collect data in intervals of seconds or minutes; however, the most severe transients may occur within a fraction of a second. A transient pressure monitor addresses this issue by continuously monitoring the pressure in the pipeline. Under normal operating conditions, the monitor only records data every few minutes (based on a user-defined interval); however, when a transient occurs, the device detects the transient pressure event and begins sampling at a higher rate (again, based on user-defined criteria). This functionality provides periodic pressure readings as well as data on transient events.

Pure Technologies will install a Telog Instruments, Inc. (Telog) Pressure Impulse Recorder to collect pressure data for up to 60 days, which can be programmed to record the minimum, average, and maximum background operating pressure every five (5) minutes (under a defined range of acceptable operating pressure). Should a transient event exceed a pre-defined change in pressure, the sampling rate increases to once every 50 milliseconds (20 readings per second). The Telog pressure monitors are also capable of recording negative pressures in the pipelines as low as negative -15.0 psi as well as positive pressures in the pipelines as high as 300 psi. Pure Technologies will then remove the recorder(s) and incorporate the results in the final report. Transient pressure monitoring will be performed concurrently with project planning and implementation to maintain project schedule.

### Structural Evaluation

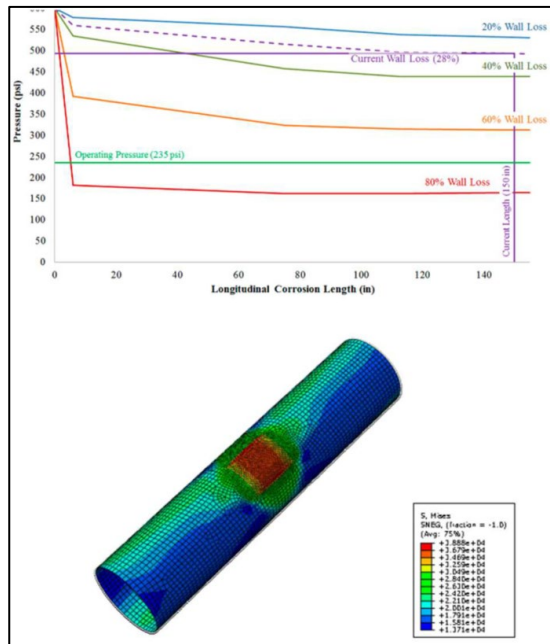
While many inspection techniques provide real data specific to pipe wall deterioration, this information alone does not fully describe the condition of a pipe. A design review can determine the appropriateness of the pipeline's design relative to the actual current loads that act on the pipeline. Finite Element Analysis (FEA) modeling can then be selectively used to further evaluate individual defects, providing increased confidence in pipeline management and repair decisions.



A pipe design review determines if the pipe specifications are adequate for the anticipated loads in the pipeline. The analysis includes examining pipe design, operating and transient pressures, and internal and external loads. For the effluent force main design review, Pure Technologies will consult the current CIP design standard, AWWA C101 Thickness Design of Cast Iron Pipe (AWWA 101).

Using the equations and requirements presented in the design standards and manuals, Pure Technologies will calculate the minimum pipe wall thickness required to withstand internal working pressure, instantaneous surge pressure, and external loading within the area of investigation. This

analysis assumes uniform wall thickness as opposed to evaluating the effects of individual defects, but defect prioritization can be conducted more reliably within the context provided by this analysis.



Following the design review, Pure Technologies will assess the ability of the most distressed CIP to resist the loadings, including bending moments created from pipe, water and sediment loads supported on the concrete cradles. Utilizing the UT testing results, transient pressure data, and the design review, Pure Technologies will model the thinnest CIP section with a three-dimensional linear FEA that will produce a pipe performance curve. The pipe performance curve graphs the Yield Limit for a CIP pipe defect at a given pressure. The analysis can model very specific defect geometry, for the most accurate results, or provide results for general defect geometries, allowing for one analysis to be applied to multiple pipes of a given thickness and under similar external loads.

Pure Technologies proposes to utilize one (1) FEA pipe performance curve to model all defects found during the UT testing and design review as having an elevated failure risk.

### Preliminary Inspection Plan

During pre-inspection planning, Pure Technologies will review existing engineering and operational documents to gain a comprehensive understanding of the pipes within the tunnel. These documents could include plan and profile drawings, pipe laying schedules, photos, as-built drawings, design specifications, repair records, results from any past inspections, and any other available documentation.

Following the records review, Pure Technologies will meet with Kansas City Water to perform a site visit to verify access requirements and to ensure the pipe sections have been prepared for testing. This process will allow the team to confirm site conditions and help to identify and mitigate any challenges or issues that may arise during the inspection.

It is our understanding that Kansas City Water will facilitate all activity for pipeline access, including but not limited to, removal of corrosion prevention coatings, cleaning/polishing of corroded pipe to remove corrosion byproducts such as scaling and debris. Kansas City Water will provide access to the mains, including ladders, scaffolding, and other activities necessary for the performance of the work if required. Pure Technologies will provide all crew members appropriate safety gear including air quality meters.

The planning document will address all OSHA safety requirements, air ventilation, air quality and confined space requirements for this project.

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## Deliverables

### Preliminary Technical Memorandum

A Draft Technical Memorandum (electronic PDF) will be submitted to Kansas City Water based on the schedule noted below. The Draft Technical Memorandum will include the following:

- Measurements and photographs of selected locations
- UT wall thickness measurements for selected locations

### Engineering Report

- Pressure transient monitoring data from monitoring period
- Review of the pipe design via the AWWA C101 design standard
- One (1) pipe performance curve for the largest pipe wall loss measurements using a 3-D non-linear finite element analysis
- Evaluation of the pipe's condition and recommendations
- Pure Technologies typically provides a presentation summarizing draft results to stakeholders to facilitate review of the Draft Report.
- A Final Report will be submitted within two weeks of the receipt of comments from Kansas City Water summarizing the findings based on the proposed inspection. The Final Report shall be delivered in electronic format (PDF format).

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## Project Responsibilities

To facilitate the inspection, Kansas City Water shall be responsible for the support services outlined below:

- Ensuring the pipe gallery and tunnel area is available for the duration of the inspections and providing safe access to the pipes during the inspections.
- Kansas City Water will be responsible for preparing the pipe surface by removing existing coating (to bare metal) prior to UT survey.
- Providing all available documentation for the pipeline to be inspected including, but not limited to, existing GIS information of the pipeline alignment in shapefile format, plan and profile drawings, pipe laying schedules, and pipe design specifications for the original installations as well as any modifications or repairs. Documentation must be clearly legible for notes and dimensions to aid in proper planning of field work.
- The cost of support services such as cleaning of the pipe to be tested and removal of corrosion byproducts is not included in this proposal and is to be provided by others.
- Provide personnel familiar with the pipeline system available during site reconnaissance and field work.
- Any dewatering/cleaning of the pipe tunnels (as needed) to accommodate the inspection.



Pure Technologies will be responsible for the following:

- Reviewing all information provided by Kansas City Water regarding the pipeline to be inspected.
- Attending site visits with knowledgeable personnel to ensure that the sites are suitable for inspection.
- Providing all data collection equipment, tools, and trained technicians as necessary to operate the equipment.
- Collecting the specific data for the identified pipeline.
- Performing a comprehensive review and analysis of the data.
- Delivering a Draft and Final Technical Memorandum that details the results of the inspections.

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## Schedule

The proposed schedule for the assessment is outlined below:

- Site Visit 1-3 weeks after NTP
- Field Mobilization 1-3 weeks after Site Visit or as scheduled
- Inspection field work 2-3 weeks
- Draft Technical Memorandum 6-8 weeks after inspection field work
- Draft Engineering Report 12-14 weeks after field work completion
- Review Period 2 weeks from receipt of the Draft Engineering Report
- Final Engineering Report 2 weeks from receipt of client review comments

## Proposed Fee and Payment Schedule

The estimated cost for this project is based on budgetary pricing provided in Fiscal Year 2021 for the subject project and the information provided at this time. The following tables summarize the estimated cost to complete the project and respective payment schedule.

Table 1: Twin Effluent Force Main Inspection Project Fee					
Item	Description	Unit	Unit Price	Quantity	Total Price
1	Site visit, document review and project coordination and scheduling	LS	\$12,000.00	1	\$12,000.00
2	Planning document and project coordination meeting	LS	\$15,000.00	1	\$15,000.00
3	Crew Mobilization and project set up	LS	\$15,000.00	1	\$15,000.00
3	Visual Inspection and UT Testing (including Technical Memorandum)	LS	\$78,750.00	1	\$78,750.00
4	Transient Pressure Monitoring for 30-day period	LS	\$ 5,500.00	1	\$ 5,500.00
5	Structural Evaluation (including AWWA Design Review and FEA Pipe Performance Curve)	LS	\$27,000.00	1	\$27,000.00
<b>Total Estimated Project Cost</b>					<b>\$153,250.00</b>

Notes:

- Should inspection be postponed after mobilization for delays caused by others, Pure Technologies may request a standby rate of \$5,513 per day.

Table 2: Payment Schedule			
Item	Service	Fee	Invoicing Period
1	Site visit and planning document)	\$27,000.00	Upon delivery of Planning Document
2	Transient Pressure Monitoring for 30-day period	\$ 5,500.00	Upon completion of the Field Work
3	Mobilization and Inspection field work	\$93,750.00	Upon competition for Field Work
3	Structural Evaluation (including AWWA Design Review and FEA Pipe Performance Curve)	\$27,00.00	Upon submittal of the Draft Report

Blue River WWTP 60-inch CIP Effluent Piping  
Ultrasonic Thickness (UT) Testing  
Kansas City Water



Thank you for the opportunity to continue assisting Kansas City Water with its pipeline assessment needs. Should you have any questions or require further clarification, please do not hesitate to contact Wayne Lindsay, Business Development Manager, at 314-761-1267 or by email at [Wayne.Lindsay@xylem.com](mailto:Wayne.Lindsay@xylem.com).

Sincerely,

*Wayne Lindsay*

Wayne Lindsay  
Business Development Manager  
314-761-1267  
[Wayne.Lindsay@xylem.com](mailto:Wayne.Lindsay@xylem.com)

Attachment: Conditions of Engagement for the Provision of Services

## **CONDITIONS OF ENGAGEMENT FOR THE PROVISION OF SERVICES (North America)**

The Proposal is issued upon and is subject to these Conditions of Engagement. If the Proposal is accepted by the Client, these Conditions of Engagement and the Proposal will be deemed to form part of the Contract between the Client and Pure.

### **1. DEFINITIONS**

In these Conditions of Engagement the following definitions apply:

- “Client” means any person or persons, firm or company engaging Pure to provide the Services.
- “Contract” means the agreement awarded to Pure as a result of the Proposal.
- “Pure” means Pure Technologies Ltd., Pure Technologies U.S. Inc., PureHM Inc., PureHM U.S. Inc. or any of their affiliates, as the case may be, which submitted the Proposal and is a party to the Contract.
- “Proposal” means Pure's offer to carry out the Services and includes all related correspondence plus agreed written variations or amendments thereto.
- “Services” mean those services of whatever nature to be supplied by Pure under the Contract.
- “Site” means the facility, land, installation or premises to which Pure is granted access for the purposes of the Contract and may include any combination of the foregoing.

### **2. PURE'S OBLIGATIONS**

- 2.1 Pure will perform the Services in accordance with the procedures described in the Proposal, using reasonable skill, care and diligence and consistent with industry standards.
- 2.2 Pure will ensure that the equipment used in performing the Services is in a good and functional state.

### **3. CLIENT'S OBLIGATIONS**

- 3.1 The Client will provide to Pure full, good faith co-operation to assist Pure in providing the Services. Unless otherwise specified in the Proposal and without limiting the generality of the foregoing, the Client will at its own expense:
- (i) ensure, if required, access to private land will be given to Pure and that any official permits or permissions required for Pure to have access to the Site or carry out the Services are obtained and are in force for the duration of the Services;
  - (ii) inform Pure in writing of any special circumstances or danger which the execution of the Services may entail or which are inherent in the Site, including the existence and identity of any known hazardous substance or material;
  - (iii) perform such additional duties and responsibilities and provide such information and resources as are described in the Proposal.
- 3.2 The description of the Services and related compensation amount set out in the Proposal will be based upon information that the Client shall have provided to Pure, and assumptions that Pure shall have identified in the Proposal. The Client acknowledges that if any such information provided by Client is materially incomplete or inaccurate, or if the

assumptions identified by Pure are not correct, then the parties will modify the Proposal to reflect the actual information, assumptions, and Services required, and the compensation to Pure will be adjusted accordingly using the change order process set out in the Contract, or if there is no such process, on an equitable basis.

3.3 Client will pay Pure within 30 days of Client's receipt of an invoice therefrom. Client acknowledges that Pure is entitled to payment for any and all Services performed hereunder up and until the date of the full completion of such Services.

3.4 Upon Client's termination of the provision of Services or any goods by Pure hereunder, Pure will be entitled to payment for any and all goods and Services provided up to and until the date Pure receives notice of termination from Client. Such payments will be at the rates as provided to Client in the Proposal.

#### **4. PROPRIETARY AND CONFIDENTIAL INFORMATION**

4.1 All reports generated in the performance of the Services and delivered by Pure to the Client will become the property of the Client.

4.2 Pure's equipment which is made available to the Client in connection with the Contract and the raw data generated in the performance of the Services will remain the sole and exclusive property of Pure. The Client will not acquire any proprietary rights in Pure's equipment, systems, software, technology, inventions (whether or not patentable), patents, patent applications, documentation, specifications, designs, data, databases, methods, processes or know-how ("Pure's Proprietary Technology"). Any modifications or improvements to the Pure's Proprietary Technology made during the performance of the Services will be the sole and exclusive property of Pure.

4.3 Both parties agree to keep confidential all documentation and information provided by the other during the performance of the Contract. The obligations set out in this clause 4.3 will remain in full force and effect after any termination or expiry, as the case may be, of the Contract.

4.4 Notwithstanding anything herein to the contrary, Contractor will have a limited, non-exclusive, royalty-free license to utilize data collected and received in the performance of services hereunder for purposes of (a) providing services, (b) analyzing and improving the services, and (iii) internal research and development for the benefit of Contractor clients.

#### **5. LIABILITY AND WARRANTIES**

5.1 Pure will indemnify and hold the Client harmless against any expense, demand, liability, loss, claim, lawsuit or proceeding whatsoever in respect of personal injury to or the death of any person, or any loss, destruction or damage to any tangible property and arising directly or indirectly from the negligence of Pure, its employees, servants or agents except to the extent caused by the negligence of the Client or any person for whom the Client is responsible. The Client will similarly indemnify Pure.

5.2 Pure will not be liable for any loss of production, loss of use of property, loss of revenue or profit, equipment downtime, business interruption, loss of goodwill, loss of anticipated savings, cost of procurement of substitute goods or services, or for any consequential, indirect, incidental, or special loss or damage suffered by the Client or any third party, or for any punitive damages, even if advised of the possibility thereof and notwithstanding the failure of essential purpose of any remedy.

5.3 Pure's cumulative liability hereunder, whether in contract, tort, or otherwise, will in no event exceed the greater of (i) the aggregate consideration paid by the City to Pure for the portion of the Services that gave rise to the liability, or (ii) \$2 million; provided, however, that this clause shall not limit Pure's indemnification obligations hereunder. The report(s) and any other recommendations or advice made by Pure relating to the pipeline or the Services will be made in accordance with the procedures described in the Proposal, using

reasonable skill, care and diligence consistent with industry standards, but do not and will not constitute a warranty of the pipeline’s quality, capacity, safety or fitness for purpose. Pure will not be liable to the Client for any liability or damages that arise from the Client’s reliance upon or application or use of such final report or recommendations or advice made by Pure in relation to the pipeline or Services, and the Client will indemnify Pure against any liability to third parties resulting therefrom.

5.4 Pure’s warranties for the Services will be set out in the Contract. Pure disclaims all implied or statutory warranties or conditions, including of merchantability, merchantable quality, durability, or fitness for particular purpose to the extent allowed by applicable law. This means Pure’s warranty obligations will be limited to what is expressly set out in the Contract.

## **6. INSURANCE**

Pure will provide the Client with a certificate of insurance evidencing the following coverages:

6.1	Commercial General Liability	\$2,000,000
6.2	Automobile Liability	\$1,000,000
6.3	Workers Compensation	Statutory
6.4	Professional Liability	\$500,000

## **7. SPECIAL CONDITIONS/ACKNOWLEDGEMENT OF EVENTS**

7.1 Pure and Client (the “Parties”) acknowledge and agree that the global COVID-19 pandemic (“COVID-19”) is ongoing, dynamic, unpredictable, and as such may impact the ability of Pure to meet its obligations under this Agreement. The Parties agree that, for so long as there is an impact of COVID-19 on Pure’s performance, all performance efforts by Pure will be on a reasonable efforts basis only and Pure shall not be responsible for failure to meet its obligations, to the extent that it is precluded from doing so as a result of COVID-19. The Parties shall work, in good faith, to make any reasonable adjustments that may be required as a result of COVID-19.