CITY OF DES MOINES

PUBLIC IMPROVEMENTS
CONTRACT DOCUMENTS

CITY-WIDE PUMP STATION TELOG COMMUNICATION SYSTEM CONVERSIONS

ACTIVITY ID
082022001

PLAN FILE NO.
642-154/175

CITY COUNCIL APPROVAL

APPROVAL DATE
June 13, 2022

ROLL CALL NO.

CONTRACT NO.

CONTRACTOR

CONTRACT AMOUNT
$

ENGINEERING DEPARTMENT
Steven L. Neber, P.E.
Des Moines City Engineer

Funding Information
Object Code 543010
Organization No E304PW
Project No SM073
ENGINEERING DEPARTMENT  
CITY OF DES MOINES, IOWA  

City-Wide Pump Station Telog Communication System Conversions  

Activity ID 082022001  

The following documents are part of this contract:  

Document  
Instructions to Bidders  
Official Publications  
Proposal  
Bid Bond  
Contract  
Performance, Payment and Maintenance Bond  
Addenda:  

Special Provisions:  
Bidding Requirements  
Technical Specifications  

Supplemental Specifications:  
General Supplemental Specifications to SUDAS, 2022 Edition  

(December 2021)  

PROJECT ENGINEER: Matt Radermacher, P.E.  
Phone Number: (515) 283-4076
INSTRUCTIONS TO BIDDERS

Activity ID 082022001
Project Name City-Wide Pump Station Telog Communication System Conversions
Fed/St. Project No.

The work comprising the above referenced project shall be constructed in accordance with the SUDAS Standard Specifications, 2022 Edition; and as further modified by the supplemental specifications and special provisions included in the contract documents. The Des Moines City Engineer is the Engineer. The terms used in the contract documents are defined in said SUDAS Standard Specifications. The City of Des Moines is the Contracting Authority on this project and shall hereinafter be referred to as the 'Jurisdiction'. Before submitting your bid, please review the SUDAS Standard Specifications, in particular, Division 1 - General Provisions and Covenants, including the sections regarding proposal requirements, bonding, contract execution and insurance requirements. Please be certain that all documents have been properly completed and submit them to the City Clerk, 1st Floor, City Hall, 400 Robert D. Ray Drive, Des Moines, Iowa, 50309.

I. BID SECURITY

The bid security must be in the minimum amount of 10% of the total bid amount including all add alternates (do not deduct the amount of deduct-alternates). Bid security shall be as defined in Section 26.8 of the Iowa Code and shall be in the form of a cashier's check or certified check drawn on a state-chartered or federally chartered bank, or a certified share draft drawn on a state-chartered or federally chartered credit union, or a bid bond executed by a corporation authorized to contract as a surety in Iowa or satisfactory to the Jurisdiction. The bid bond must be submitted on the enclosed Bid Bond form (DSM Urban 04/20/98) as no other bid bond forms are acceptable. All signatures on the bid bond must be original signatures in ink; facsimile (fax) of any signature on the bid bond is not acceptable. Bid security other than said bid bond shall be made payable to the City of Des Moines, "Miscellaneous Bank Checks", and personal checks, as well as "Money Orders" and "Traveler's Checks" issued by persons, firms or corporations licensed under Chapter 533B of the Iowa Code, are not acceptable bid security. NOTE: If the Bidder submits Bid Security in the form of a Bid Bond, and the Bidder wishes to have their Bid Bond returned to them after an approved contract and bond has been executed or after there is a rejection of all bids (in accordance with Iowa Code 26.10), the Bidder shall include a self-addressed envelope with the Bid Bond.

II. SUBMISSION OF THE PROPOSAL AND IDENTIFICATION OF BIDDER

A. The proposal shall be sealed in an envelope, properly identified as the Proposal with the project title and the name and address of the bidder, and deposited with the Jurisdiction at or before the time and at the place provided in the Notice to Bidders. It is the sole responsibility of the bidder to see that its proposal is delivered to the Jurisdiction prior to the time for opening bids, along with the appropriate bid security sealed in the separate envelope identified as Bid Security and attached to the outside of the bid proposal envelope. Any proposal received after the scheduled time for the receiving of proposals will be returned to the bidder unopened and will not be considered. Bidders must either utilize the two envelopes provided with the Bidding documents, or Bidders provide their own two envelopes, for their proposals and bid security for submission of their bids.

Sales Tax: The bidder should not include sales tax in the bid pursuant to Iowa Code. A sales tax exemption certificate will be available for all material purchased for incorporation in the project.

Accessibility for individuals with disabilities. The City of Des Moines is pleased to provide accommodations to individuals with disabilities or groups and encourages participation in City government. To better serve you, please notify us at least three business days in advance when possible at 515-283-4209, should special accommodations be required.
B. **All pages of the Proposal must be returned.** The following documents shall be completed, signed and returned in the Proposal envelope.

PROPOSAL - Complete each of the following parts:

- Part B - Acknowledgement of Addenda, if any have been issued;
- Part C - Bid Items, Quantities and Prices;
- Part F - Additional Requirements; The following proposal attachment documents must be completed and attached:

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DESCRIPTION OF ATTACHMENT</th>
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<tr>
<td>1.</td>
<td>Reciprocal Resident Bidder and Labor Force</td>
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<tr>
<td>2.</td>
<td>General</td>
</tr>
</tbody>
</table>

- Part G - Identity of Bidder.

The Bidder shall sign the proposal. The signature on the proposal and all proposal attachments must be an original signature in ink signed by the same individual who is the Company Owner or an authorized Officer of the Company; copies or facsimile of any signature will not be accepted. The **Bidder Status Form** (PROPOSAL Part F Item 2B), is required by the Iowa Labor Commissioner, pursuant to Iowa Admin. Code rule 875-156.2(1). The Bidder must complete and submit the **Bidder Status Form**, signed by an authorized representative of the Bidder, with their bid proposal. Under Iowa Admin. Code rule 875-156.2(1), failure to provide the **Bidder Status Form** with the bid may result in the bid being deemed non-responsive and may result in the bid being rejected. The **Worksheet: Authorization to Transact Business** from the Labor Commissioner is included on page 3 of 3 of the Instructions to Bidders, to assist Bidders in completing the **Bidder Status Form**.

C. **Out-of-State Contractors:**

1. Pursuant to Section 91C.7 of the Iowa Code, an out-of-state contractor, before commencing a contract in excess of five thousand dollars in value in Iowa, shall file a bond with the Division of Labor Services of the Iowa Department of Workforce Development. The contractor should contact 515-242-5871 for further information. Prior to contract execution, the City Engineer may forward a copy of this contract to the Iowa Department of Workforce Development as notification of pending construction work. It is the contractor’s responsibility to comply with said Section 91C.7 before commencing this work.

2. Prior to entering into contract, the designated low bidder, if it be a corporation organized under the laws of a state other than Iowa, shall file with the Engineer a certificate from the Secretary of the State of Iowa showing that it has complied with all the provisions of Chapter 490 of the Code of Iowa, or as amended, governing foreign corporations. For further information contact the Iowa Secretary of State Office at 515-281-5204.

III. **GENERAL**

A. **All bid documents must be submitted as printed. No alterations, additions, or deletions are permitted.** If the Bidder notes a requirement in the contract documents that the Bidder believes will require a conditioned or unsolicited alternate bid, the Bidder must immediately notify the Engineer in writing. The Engineer will issue any necessary interpretation by an addendum.

B. Additional information regarding addenda, plan holders, bid tabulations, etc. can be found on the Engineering Department web site at [http://www.dm.gov/Departments/Engineering/Pages/BidsContracts.aspx](http://www.dm.gov/Departments/Engineering/Pages/BidsContracts.aspx).
Worksheet: Authorization to Transact Business

This worksheet may be used to help complete Part A of the Resident Bidder Status Form. If at least one of the following describes your business, you are authorized to transact business in Iowa.

Yes ___ No ___ My business is currently registered as a contractor with the Iowa Division of Labor.

Yes ___ No ___ My business is a sole proprietorship and I am an Iowa resident for Iowa income tax purposes.

Yes ___ No ___ My business is a general partnership or joint venture. More than 50 percent of the general partners or joint venture partners are residents of Iowa for Iowa income tax purposes.

Yes ___ No ___ My business is an active corporation with the Iowa Secretary of State and has paid all fees required by the Secretary of State, has filed its most recent biennial report, and has not filed articles of dissolution.

Yes ___ No ___ My business is a corporation whose articles of incorporation are filed in a state other than Iowa, the corporation has received a certificate of authority from the Iowa secretary of state, has filed its most recent biennial report with the secretary of state, and has neither received a certificate of withdrawal from the secretary of state nor had its authority revoked.

Yes ___ No ___ My business is a limited liability partnership which has filed a statement of qualification in this state and the statement has not been canceled.

Yes ___ No ___ My business is a limited liability partnership which has filed a statement of qualification in a state other than Iowa, has filed a statement of foreign qualification in Iowa and a statement of cancellation has not been filed.

Yes ___ No ___ My business is a limited partnership or limited liability limited partnership which has filed a certificate of limited partnership in this state, and has not filed a statement of termination.

Yes ___ No ___ My business is a limited partnership or a limited liability limited partnership whose certificate of limited partnership is filed in a state other than Iowa, the limited partnership or limited liability limited partnership has received notification from the Iowa secretary of state that the application for certificate of authority has been approved and no notice of cancellation has been filed by the limited partnership or the limited liability limited partnership.

Yes ___ No ___ My business is a limited liability company whose certificate of organization is filed in Iowa and has not filed a statement of termination.

Yes ___ No ___ My business is a limited liability company whose certificate of organization is filed in a state other than Iowa, has received a certificate of authority to transact business in Iowa and the certificate has not been revoked or canceled.

309-6001 02-14

INSTRUCTION TO BIDDERS: Page 3 of 3
NOTICE TO BIDDERS

CITY OF DES MOINES PUBLIC IMPROVEMENT PROJECT

Time and Place for Filing Sealed Proposals. Sealed bids for the work comprising each improvement as stated below must be filed at or before 11:00 a.m. on May 10, 2022, in the office of the City Clerk, 1st Floor, City Hall, 400 Robert D. Ray Drive, Des Moines, Iowa, 50309.

Accessibility for individuals with disabilities. The City of Des Moines is pleased to provide accommodations to individuals with disabilities or groups and encourages participation in City government. To better serve you, please notify us at least three business days in advance when possible at 515-283-4209, should special accommodations be required.

Time and Place Sealed Proposals Will Be Opened and Considered. Sealed proposals will be opened and bids tabulated at 11:00 a.m., on May 10, 2022, in the City Council Chambers, 2nd Floor, City Hall, 400 Robert D. Ray Drive, Des Moines, Iowa, for consideration by the City Council (Council) at its meeting on June 13, 2022. The City of Des Moines (Jurisdiction) reserves the right to reject any and all bids.

Time for Commencement and Completion of Work. Work on each improvement shall be commenced upon approval of the contract by the Council, and completed as stated below.

Bid Security. Each bidder shall accompany its bid with bid security as defined in Section 26.8 of the Iowa Code and as specified by the Jurisdiction.

Contract Documents. Copies of the contract documents will be available after April 18, 2022, from the City Engineer's Office, 2nd Floor, City Hall, 400 Robert D. Ray Drive, Des Moines, Iowa 50309, at no cost, phone (515-283-4573).

Preference for Iowa Products and Labor. By virtue of statutory authority, preference will be given to products and provisions grown and coal produced within the State of Iowa, and to Iowa domestic labor, to the extent lawfully required under Iowa statutes.

Sales Tax. The bidder should not include sales tax in the bid. A sales tax exemption certificate will be available for all material purchased for incorporation in the project.

General Nature of Public Improvement.

City-Wide Pump Station Telog Communication System Conversions, 082022001

The improvement includes upgrading the telemetry communication system and associated control equipment of thirty-two (32) pump stations with the contractor to provide all labor and all additional material and equipment necessary to complete the installations and make each location operational, including but not limited to Telog equipment enclosure, modifications to existing pump station control panels, wiring, conduit, mounting of new equipment, demolition, clear up, and all other associated work and incidental items, all in accordance with the contract documents including Plan File No. 642-154/175, located at thirty-two (32) pump stations in Des Moines, Iowa.

This project shall be fully completed not later than February 15, 2023, and in accordance with the Completion Provisions.

Engineer's Construction Estimate. $1,450,000.00

Preletting Conference.
NOTICE OF PUBLIC HEARING
CITY OF DES MOINES PUBLIC IMPROVEMENT PROJECT

Public Hearing on Proposed Contract Documents and Estimated Costs for Improvement. A public hearing will be held by the City Council on the proposed contract documents (plans, specifications and form of contract) on file in the City Engineer’s Office, and estimated cost for each improvement at its meeting on June 13, 2022, at 5:00 p.m., in the City Council Chambers, 2nd Floor, City Hall, 400 Robert D. Ray Drive, Des Moines, Iowa. Please check the posted agenda in advance of the June 13, 2022 meeting for any update on the manner in which the public hearing will be conducted to comply with COVID-19 social distancing and safety guidelines. The City Council Meetings are open to all individuals regardless of disability. To better serve you, please notify the City Clerk at least three business days in advance, when possible, should special accommodations be required.

General Nature of Public Improvement

City-Wide Pump Station Telog Communication System Conversions, 082022001

The improvement includes upgrading the telemetry communication system and associated control equipment of thirty-two (32) pump stations with the contractor to provide all labor and all additional material and equipment necessary to complete the installations and make each location operational, including but not limited to Telog equipment enclosure, modifications to existing pump station control panels, wiring, conduit, mounting of new equipment, demolition, clean up, and all other associated work and incidental items; all in accordance with the contract documents including Plan File No. 642-154/175, located at thirty-two (32) pump stations in Des Moines, Iowa

Published in the Des Moines Register
May 25, 2022
PROPOSAL

To the Honorable Mayor and Members of the City Council, City of Des Moines, Iowa

PROPOSAL: PART A - SCOPE

The City of Des Moines, hereinafter called the "Jurisdiction", has need of a qualified contractor to complete the work comprising the below referenced improvement. The undersigned Bidder hereby proposes to complete the work comprising the below referenced improvements or project as specified in the contract documents, which are officially on file with the Jurisdiction, in the Des Moines City Engineer's Office, at the prices hereinafter provided in Part C of this Proposal, for the following described improvements:

City-Wide Pump Station Telog Communication System Conversions, 082022001

The improvement includes upgrading the telemetry communication system and associated control equipment of thirty-two (32) pump stations with the contractor to provide all labor and all additional material and equipment necessary to complete the installations and make each location operational, including but not limited to Telog equipment enclosure, modifications to existing pump station control panels, wiring, conduit, mounting of new equipment, demolition, clean up, and all other associated work and incidental items; all in accordance with the contract documents including Plan File No. 642-154/175, located at thirty-two (32) pump stations in Des Moines, Iowa.

PROPOSAL: PART B - ACKNOWLEDGEMENT OF ADDENDA

The Bidder hereby acknowledges that all addenda become a part of the contract documents when issued, and that each such addendum has been received and utilized in the preparation of this bid. The Bidder hereby acknowledges receipt of the following addenda by inserting the number of each addendum in the blanks below:

ADDENDUM NUMBER __________ ADDENDUM NUMBER __________
ADDENDUM NUMBER __________ ADDENDUM NUMBER __________

and certifies that said addenda were utilized in the preparation of this bid.

PROPOSAL: PART C - BID ITEMS, QUANTITIES AND PRICES

UNIT BID PRICE CONTRACTS: The bidder must provide all unit prices, the amount, the total construction cost, any alternate price(s), and the total construction cost plus any add-alternates if there are alternates on the proposal on Proposal Attachment: Part C - Bid Items, Quantities, and Prices. The total construction cost plus any alternates selected by the Jurisdiction shall be used for comparison of bids. The total construction cost plus any add-alternates shall be used for determining the sufficiency of the bid security.

**ALL SECTIONS OF THE PROPOSAL MUST BE COMPLETED WHERE APPLICABLE AND ALL PAGES RETURNED, OR THE BID WILL NOT BE ACCEPTED.**

ENGINEERING DEPARTMENT
CITY OF DES MOINES, IOWA
BASE BID CONTRACTS: The bidder must provide any bid price(s), the total base bid price, any alternate price(s), and the total base bid plus any add-alternates if there are alternates on the proposal on Proposal Attachment: Part C - Bid Items, Quantities, and Prices. The total base bid plus any alternates selected by the Jurisdiction shall be used for comparison of bids. The total base bid plus any add-alternates shall be used for determining the sufficiency of the bid security.

PROPOSAL: PART D - GENERAL

The Bidder hereby acknowledges that the Jurisdiction, in advertising for public bids for this project, reserves the right to:

1. Reject any or all bids. Award of the contract, if any, to be to the lowest responsible, responsive bidder; and
2. Reject any or all alternates in determining the items to be included in the contract. Designation of the lowest responsible, responsive bidder to be based on comparison of the total bid plus any selected alternates; and
3. Make such alterations in the contract documents or in the proposal quantities as it determines necessary in accordance with the contract documents after execution of the contract. Such alterations shall not be considered a waiver of any conditions of the contract documents, and shall not invalidate any of the provisions thereof; and

The Bidder hereby agrees to:

1. Enter into a contract, if this proposal is selected, in the form approved by the Jurisdiction and provide the following documents:
   - Proof of registration with the Iowa Division of Labor in accordance with Chapter 91C of the Iowa Code by providing a valid Registration Number,
   - Proof of insurance by a Certificate(s) of Insurance,
   - A performance, maintenance, and payment bond; and
2. Forfeit bid security, not as a penalty but as liquidated damages, upon failure to enter into such contract and/or to furnish said documents and information as requested in Item 1 above acceptable to the Des Moines City Engineer; and
3. Commence the work on this project on or after the date a written Notice to Proceed is issued by the Jurisdiction, and to fully complete the project not later than February 15, 2023, and in accordance with the Completion Provisions; and to pay liquidated damages for noncompliance with said completion provisions at the rate of One Thousand and 00/100 ($1,000.00) for each calendar day thereafter that the work remains incomplete.

PROPOSAL: PART E - NON-COLLUSION AFFIDAVIT

The Bidder hereby certifies:

1. That this proposal is not affected by, contingent on, or dependent on any other proposal submitted for any improvement with the Jurisdiction; and
2. That no individual employed by the Bidder has employed any person to solicit or procure the work on this project, nor will any employee of the Bidder make any payment or agreement for payment of any compensation in connection with the procurement of this project; and
3. That no part of the bid price received by the Bidder was paid or will be paid to any person, corporation, firm, association, or other organization for soliciting the bid, other than the payment of their normal compensation to persons regularly employed by the Bidder whose services in connection with the construction of the project were in the regular course of their duties for the Bidder; and
4. That this proposal is genuine and not collusive or sham; that the Bidder has not colluded, conspired, connived or agreed, directly or indirectly, with any bidder or person, to put in a sham bid or to refrain from bidding, and has not in any manner, directly or indirectly, sought, by agreement or collusion, or communication or conference, with any person, to fix the bid price of the Bidder or of any other bidder, and that all statements in this proposal are true; and

5. That the individual(s) executing this proposal have the authority to execute this proposal on behalf of the Bidder.

PROPOSAL: PART F - ADDITIONAL REQUIREMENTS

The Bidder hereby agrees to comply with the additional requirements listed below, which are included in this proposal and identified as proposal attachments:

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</table>
PROPOSAL: PART G - IDENTITY OF BIDDER

The Bidder shall indicate whether the bid is submitted by a/an

☐ Individual, Sole Proprietorship

☐ Partnership

☐ Corporation

☐ Limited Liability Company

☐ Joint-venture: all parties must join-in and execute all documents

☐ Other

By

__________________________

Bidder

__________________________

Signature

__________________________

Name (Print/Type)

__________________________

Title

__________________________

Street Address

__________________________

City, State, Zip Code

__________________________

Telephone Number / Email Address

A contract will not be executed until the apparent low Bidder is registered with the Iowa Commissioner of Labor pursuant to Section 91C.5 of the Iowa Code. The Bidder should contact 515-242-5871 for registration information.

Engineering Department Staff will contact the apparent low Bidder and obtain the name and title of the company's owner, president, CEO, etc. if a different person than entered above.

NOTE: The signature on this proposal must be an original signature in ink; copies or facsimile of any signature will not be accepted.
This is a unit bid price contract. The bidder must provide all unit prices, the amount, the total construction cost, any alternate price(s), and the total construction cost plus any add-altornates if there are alternates on the proposal. The total construction cost plus any alternates selected by the Jurisdiction shall be used for comparison of bids. The total construction cost plus any add-altornates shall be used for determining the sufficiency of the bid security.

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**Total Construction Cost** $__________

*Item does not have to be included in 4-year maintenance bond but shall be covered by a 1-year maintenance bond.

**NOTE:** It is understood that the above quantities are estimated for the purpose of this bid. All quantities are subject to revision by the City. Quantity changes which amount to twenty (20) percent or less of the total bid shall not affect the unit bid price of that item.
PROPOSAL ATTACHMENT: PART F - ADDITIONAL REQUIREMENTS
ITEM 1 - RECIPROCAL RESIDENT BIDDER AND LABOR FORCE

Iowa Code section 73A.21 provides for a Reciprocal Resident Bidder and Labor Force preference.

Because of the nature of this project (i.e. Federal-aid participation), the Reciprocal Resident Bidder and Labor Force preference,

☐ shall not apply to this project, and the bidder need not complete the Resident Bidder Information below.

☒ shall apply to this project, and the bidder shall complete the Resident Bidder Information below.

To implement section 73A.21, the Iowa Labor Commissioner adopted chapter 156 of the Iowa Administrative Code, "Bidder Preferences in Government Contracting". Iowa Admin. Code rule 875-156.2(1) requires each bidder to complete the attached Bidder Status Form. The Bidder must complete and submit the Bidder Status Form, signed by an authorized representative of the bidder, with their bid Proposal. Under Iowa Admin. Code rule 875-156.2(1), failure to provide the statement with the bid may result in the bid being deemed nonresponsive and may result in the bid being rejected.
Bidder Status Form

To be completed by all bidders

Part A

Please answer “Yes” or “No” for each of the following:
Yes_____ No_____ My company is authorized to transact business in Iowa.

(To help you determine if your company is authorized, please review the "Worksheet: Authorization to Transact Business", on page 3 of the "Instructions to Bidders").

Yes_____ No_____ My company has an office to transact business in Iowa.
Yes_____ No_____ My company’s office in Iowa is suitable for more than receiving mail, telephone calls, and e-mail.
Yes_____ No_____ My company has been conducting business in Iowa for at least 3 years prior to the first request for bids on this project.
Yes_____ No_____ My company is not a subsidiary of another business entity or my company is a subsidiary of another business entity that would qualify as a resident bidder in Iowa.

If you answered “Yes” for each question above, your company qualifies as a resident bidder. Please complete Parts B and D of this form.

If you answered “No” to one or more questions above, your company is a nonresident bidder. Please complete Parts C and D of this form.

To be completed by resident bidders

Part B

My company has maintained offices in Iowa during the past 3 years at the following addresses:

Dates: _____ / _____ / _____ to _____ / _____ / _____ Address: ____________________________
City, State, Zip: ____________________________

Dates: _____ / _____ / _____ to _____ / _____ / _____ Address: ____________________________
City, State, Zip: ____________________________

Dates: _____ / _____ / _____ to _____ / _____ / _____ Address: ____________________________
City, State, Zip: ____________________________

You may attach additional sheet(s) if needed.

To be completed by non-resident bidders

Part C

1. Name of home state or foreign country reported to the Iowa Secretary of State:

2. Does your company’s home state or foreign country offer preferences to bidders who are residents? Yes_____ No_____

3. If you answered “Yes” to question 2, identify each preference offered by your company’s home state or foreign country and the appropriate legal citation.

You may attach additional sheet(s) if needed.

To be completed by all bidders

Part D

I certify that the statements made on this document are true and complete to the best of my knowledge and I know that my failure to provide accurate and truthful information may be a reason to reject my bid.

Firm Name: ____________________________

Signature: ____________________________ Date: ____________________________

You must submit the completed form to the governmental body requesting bids per 875 Iowa Administrative Code Chapter 156.

This form has been approved by the Iowa Labor Commissioner.

309-6001 02-14
PROPOSAL ATTACHMENT: PART F - ADDITIONAL REQUIREMENTS
ITEM 2 - GENERAL

1. The work under this proposal shall be constructed in accordance with the SUDAS Standard Specifications, 2022 Edition, and as further modified by the supplemental specifications and special provisions included in the contract documents.

   Alternate Sales Tax:
   Section 1020, 1.08, B, of the Supplemental Specifications shall apply. The bidder shall not include sales tax in the bid. A sales tax exemption certificate will be available for all materials purchased for incorporation in the project.

2. The Bidder hereby acknowledges that the City of Des Moines in advertising for public bids for this work reserves the right to give a limited notice to proceed of a duration not longer than three months. This limited notice to proceed shall be given where all necessary right-of-way has not yet been acquired. The limited notice to proceed will allow construction to proceed as far as possible and practical on the right-of-way, which has been acquired.

3. The Bidder hereby acknowledged and agrees:
   • To comply with the Equal Employment Opportunity Program included in the City of Des Moines Contract Compliance Program, which is available at the following website <http://www.dmgov.org/Departments/Engineering/PDF/Contract%20Compliance%20Program%20(June%20202017).pdf> or from the City Engineer’s Office.
   • To comply with any and all applicable provisions of the Des Moines Human Rights Ordinance, Chapter 62, of the Des Moines Municipal Code.
   • Not to discriminate against any employees, or applicants for employment, on the basis of age, race, religion, creed, color, sex, sexual orientation, national origin, ancestry, disability, familial status or gender identity.
   • To include this provision in all subcontracts for this project.

4. The City's Overall Annual DBE/TSB Goal for calendar year 2022 is 6.03%, which represents a target that the City would like to achieve in including DBE/TSB participation on City contracts; and is not a mandatory goal for this project. The Certified Directory of DBEs is available at the following website <https://secure.iowadot.gov/DBE/Directory/Index/>. The Certified Directory of TSBs is available at the following website <https://iowaeda.dynamics365portals.us/tsb-search/>

PROPOSAL ATTACHMENT: PART F - ADDITIONAL REQUIREMENTS
ITEM 3 - COMPLETION PROVISIONS

The Bidder hereby agrees to commence and complete the work in accordance with the attached Completion Provisions.
PROPOSAL ATTACHMENT: PART F – ADDITIONAL REQUIREMENTS
ITEM 3 – COMPLETION PROVISIONS

The Bidder hereby agrees to:

1. Commence the work on or before a date to be specified in a written Notice to Proceed by the City and to fully complete all work no later than February 15, 2023; and to pay liquidated damages for noncompliance with said completion provision in the amount of one thousand and no/100 dollars ($1,000.00) for each calendar day thereafter.

2. Undertake and schedule work in compliance with the Intermediate Completion Date requirements as described below. The work to be completed by the intermediate completion date shall be such work as required to satisfy the intermediate completion date descriptions.

Intermediate Completion Date #1 (December 15th, 2022):

The Contractor shall fully complete construction of all work at the stormwater pump stations included in the project, including start-up and testing by December 15th, 2022; and to pay liquidated damages for noncompliance with said completion provisions in the amount of one thousand and no/100 dollars ($1,000.00) for each calendar day thereafter that all work, is not completed in accordance with the described Intermediate Completion Date #1 provision.

3. Undertake and schedule work in compliance with the working day completion provisions as described below. The work to be completed by the working day completion requirements shall be such work as required to satisfy the working day completion descriptions.

Working Day Completion #1:
Maintaining normal operation of all pump stations during construction is critical and Contractor shall obtain approval from the City prior to taking any pump station offline. Contractor shall request approval a minimum of five (5) days in advance of the date desired to take any pump station out of service. The City reserves the right to delay the date the pump station may be taken out of service due to current or anticipated rainfall or river stage. Contractor should anticipate the likelihood the start of work will be delayed due to rainfall or river conditions. There will be no adjustment of contract price as a result of the delay. Contractor shall have all pump station control panels re-energized and placed back in normal operation at the end of each working day. Noncompliance with said working day requirement shall result in payment of liquidated damages with said completion provisions in the amount of one thousand and no/100 dollars ($1,000.00) for each working day thereafter.

4. Pay separate sums of liquidated damages that will be assessed for each of the conditions described hereinbefore, and they shall be cumulative if multiple conditions have not been satisfied.
ENGINNEERING DEPARTMENT
CITY OF DES MOINES, IOWA

BID BOND

KNOW ALL BY THESE PRESENTS:

That we, __________________________________________, as Principal, and

______________________________________________________, as Surety, are held and firmly

bound unto the City of Des Moines, as Obligee (hereinafter the "Jurisdiction"), in the penal sum of

______________________________________________ dollars

($__________________) lawful money of the United States, for which payment the Principal and Surety bind

themselves, their heirs, executors, administrators, successors, and assigns jointly and severally, firmly by

these presents.

The Principal has submitted to the Jurisdiction a proposal to enter into a contract in writing, for the following

described improvements:

   City-Wide Pump Station Telog Communication System Conversions, 082022001

   The improvement includes upgrading the telemetry communication system and associated control
   equipment of thirty-two (32) pump stations with the contractor to provide all labor and all additional
   material and equipment necessary to complete the installations and make each location operational,
   including but not limited to Telog equipment enclosure, modifications to existing pump station control
   panels, wiring, conduit, mounting of new equipment, demolition, clean up, and all other associated work
   and incidental items; all in accordance with the contract documents including Plan File No. 642-154/175,
   located at thirty-two (32) pump stations in Des Moines, Iowa.

The Surety hereby stipulates and agrees that the obligations of the Surety and its Bond will be in no way

impaired or affected by any extension of the time within which the Jurisdiction may accept the Bid or execute

a Contract; and the Surety does hereby waive notice of any such extension.

In the event that any actions or proceedings are initiated with respect to this Bond, the parties agree that the

venue will be Polk County, State of Iowa. If legal action is required by the Jurisdiction against the Surety or

Principal to enforce the provisions of this bond or to collect the monetary obligation accruing to the benefit of

the Jurisdiction, the Surety or Principal agrees to pay the Jurisdiction all outlay and expense incurred by the

Jurisdiction in enforcing any of the provisions of this Bond. All rights, powers, and remedies of the

Jurisdiction are cumulative and not alternative and are in addition to all rights, powers and remedies given to

the Jurisdiction by law. The Jurisdiction may proceed against the Surety for any amount guaranteed

hereunder whether action is brought against Principal or whether or not the Principal is joined in the action.

As used herein, the phrase "all outlay and expense" is not to be limited in any way, but includes the actual and

reasonable costs and expenses incurred by the Jurisdiction including interest, benefits and overhead where

applicable. Accordingly, "all outlay and expense" would include but not be limited to all contract or employee

expense, outside experts, attorneys fees (including overhead expenses of the Jurisdiction's staff attorneys), and

all costs and expenses of litigation as they are incurred by the Jurisdiction.

DSM Urban 04/20/1998
If the proposal by the Principal is accepted and the Principal enters into a contract with the Jurisdiction in accordance with the terms of the proposal, including the provision of insurance and bond as specified in the contract documents with good and sufficient surety for the faithful performance of the contract, for the prompt payment of labor and material furnished in the prosecution of the work, and for the maintenance of the improvements as may be required in the contract documents or, in the event the Principal does not enter into a contract and provide the required insurance and bonds, the Principal pays the penal sum to the Jurisdiction, then this obligation will become null and void; otherwise, the Surety shall pay to the Jurisdiction the full amount of the bid bond, together with court costs, attorney's fees, and any other expense of recovery.

Signed and sealed this __________ day of ______________________, 20__________

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NOTE:

1. All signatures on this bid bond must be original signatures in ink; copies or facsimile of any signature will not be accepted.

2. This bond must be sealed with the Surety's raised, embossed seal.

3. The Certificate or Power of Attorney accompanying this bond must be valid on its face and sealed with the Surety's raised, embossing seal or security watermark.

4. The name and signature of the Surety's Attorney-in-Fact/Officer entered on this bond must be exactly as listed on the Certificate or Power of Attorney accompanying this bond.
CONTRACT

THIS CONTRACT, made and entered into at Des Moines, Iowa, on _____________, by and between the City of Des Moines, by its Mayor, upon order of its City Council, hereinafter the "Jurisdiction", and __________________________, hereinafter the "Contractor".

WITNESSETH:

The Contractor hereby agrees to complete the work comprising the below referenced improvement as specified in the contract documents, which are officially on file with the Jurisdiction, in the Des Moines City Engineer's Office. This contract includes all contract documents. The work under this contract shall be constructed in accordance with the SUDAS Standard Specifications, 2022 Edition; and as further modified by the supplemental specifications and special provisions included in said contract documents, and the Contract Attachments attached hereto. The Des Moines City Engineer is the Engineer. The Contractor further agrees to complete the work in strict accordance with said contract documents, and to guarantee the work as required by law, for the time required in said contract documents, after its acceptance by the Jurisdiction.

This contract is awarded and executed for completion of the work specified in the contract documents for the bid prices shown on the Contract Attachment: Item 2: Bid Items, Quantities and Prices which were proposed by the Contractor in its proposal submitted in accordance with the Notice to Bidders for the following described improvements:

City-Wide Pump Station Telog Communication System Conversions, 082022001
The improvement includes upgrading the telemetry communication system and associated control equipment of thirty-two (32) pump stations with the contractor to provide all labor and all additional material and equipment necessary to complete the installations and make each location operational, including but not limited to Telog equipment enclosure, modifications to existing pump station control panels, wiring, conduit, mounting of new equipment, demolition, clean up, and all other associated work and incidental items; all in accordance with the contract documents including Plan File No. 642-154/175, located at thirty-two (32) pump stations in Des Moines, Iowa.

The Contractor agrees to perform said work for and in consideration of the Jurisdiction's payment of the bid amount of _____________________________ dollars ($________________________) which amount shall constitute the required amount of the performance, payment, and maintenance bond. The Contractor hereby agrees to commence work under this contract on or after the date a written Notice to Proceed is issued by the Jurisdiction and to fully complete the project not later than February 15, 2023 and in accordance with the Completion Provisions; and to pay liquidated damages for noncompliance with completion provision the amount of One Thousand and 00/100 dollars ($1,000.00), for each calendar day thereafter that the work remains incomplete.
IN WITNESS WHEREOF, the Parties hereto have executed this instrument, in triplicate on the date first shown written.

JURISDICTION:

By

T. M. Franklin Cowie, Mayor

(Seal)

ATTEST:

P. Kay Cmelik, City Clerk

FORM APPROVED BY:

Kathleen Vanderpool, Deputy City Attorney

CONTRACTOR:

By

Contractor

Signature

Title

Street Address

City, State - Zip Code

Phone: /

CONTRACTOR PUBLIC REGISTRATION INFORMATION To Be Provided By:

1. All Contractors: The Contractor's Public Registration Number, issued by the Iowa Commissioner of Labor pursuant to Section 91C.5 of the Iowa Code, is as follows:

   Number

2. Out-of-State Contractors:

   A. Pursuant to Section 91C.7 of the Iowa Code, an out-of-state contractor, before commencing a contract in excess of five thousand dollars in value in Iowa, shall file a bond with the division of labor services of the department of workforce development. The contractor should contact 515-242-5871 for further information. Prior to contract execution, the City Engineer may forward a copy of this contract to the Iowa Department of Workforce Development as notification of pending construction work. It is the contractor's responsibility to comply with said Section 91C.7 before commencing this work.

   B. Prior to entering into contract, the designated low bidder, if it be a corporation organized under the laws of a state other than Iowa, shall file with the Engineer a certificate from the Secretary of the State of Iowa showing that it has complied with all the provisions of Chapter 490 of the Code of Iowa, as or as amended, governing foreign corporations. For further information contact the Iowa Secretary of State Office at 515-281-5204.

   NOTE: All signatures on this contract must be original signatures in ink: copies or facsimile of any signature will not be accepted.
CORPORATE ACKNOWLEDGEMENT

State of ______________________ ) SS
________________________________ County )

On this __________ day of ________________, 20____, before me, the undersigned, a Notary Public in and for the State of __________, personally appeared __________________________ and __________________________, to me known, who, being by me duly sworn, did say that they are the __________________________ and __________________________, respectively, of the corporation executing the foregoing instrument; that (no seal has been procured by) (the seal affixed thereto is the seal of) the corporation; that said instrument was signed (and sealed) on behalf of the corporation by authority of this Board of Directors; and __________________________ acknowledged the execution of the instrument to be the voluntary act and deed of the corporation, by it and by them voluntarily executed.

________________________________
Notary Public in and for the State __________________________

My commission expires __________________________
1. The Contractor acknowledges and agrees:
   - To comply with the Equal Employment Opportunity Program included in the City of Des Moines Contract Compliance Program, which is available at the following website <http://www.dmgov.org/Departments/Engineering/PDF/Contract%20Compliance%20Program%20(June%202017).pdf> or from the City Engineer’s Office.
   - To comply with any and all applicable provisions of the Des Moines Human Rights Ordinance, Chapter 62, of the Des Moines Municipal Code.
   - Not to discriminate against any employees, or applicants for employment, on the basis of age, race, religion, creed, color, sex, sexual orientation, national origin, ancestry, disability, familial status or gender identity.
   - To include this provision in all subcontracts for this project.

2. The Contractor agrees to comply with the requirements of the City of Des Moines Contract Compliance Program as referenced in the proposal. Final acceptance of the project will not be made until the Contractor has submitted to the City Engineer a notarized summary of payments to and scope of work by all DBE/TSB subcontractors.

3. The City of Des Moines Master Construction Safety Packet (Safety Plan) is available at <http://www.dmgov.org/Departments/Engineering/PDF/MasterConstructionSafetyPacket.pdf> and is also available upon request from the Engineering Department. The Engineering Department will make available a copy of the City of Des Moines Safety Plan to the Contractor when the contract is awarded. The Contractor understands and agrees that said Safety Plan is for the Contractor’s information only and that it is the Contractor’s sole responsibility to provide, or make available, this safety information to all its Subcontractors.

4. The Contractor understands and agrees that the construction of the work included in this contract is by its nature dangerous work. The Contractor agrees:
   - That the Contractor should have a safety program; however, the Contractor need not submit a safety program to the City of Des Moines, and City of Des Moines staff will not review or approve the Contractor’s safety program. The City of Des Moines assumes that the Contractor will maintain a safe worksite; however, City of Des Moines staff will not intrude in the Contractor’s responsibility for safety issues.
   - That until the work is accepted by the Jurisdiction; the work shall be in the custody of and under the charge, care, and control of the Contractor.
   - That the Contractor is responsible for the project area or work site.
   - That the Contractor is solely responsible for the safety of everyone on its work site.
   - That it is the Contractor’s sole responsibility to provide as safe a working site as possible given the nature of the work.
   - That it is the Contractor’s responsibility to notify and advise its employees, subcontractors, suppliers, and everyone on the worksite of the dangers associated with the work, and provide them with appropriate safety information to protect them from those dangers.

5. The Contractor acknowledges and agrees that no contract shall be binding upon the City of Des Moines until said contract has been executed by the Bidder, and shall have been approved by the City Council and executed by the Mayor and attested to by the City Clerk.
6. The Contractor agrees that sixty (60) days shall constitute a reasonable time within which it shall be required to make progress payments or final payment to subcontractors after each subcontractor's satisfactory performance of its work, all as required by Section 573.12 2.b.(2) of the Code of Iowa.
CONTRACT ATTACHMENT: ITEM 2 - BID ITEMS, QUANTITIES AND PRICES: 1 of 2

This contract is awarded and executed for completion of the work specified in the contract documents for the bid price tabulated below as proposed by the contractor in its proposal submitted in accordance with notice to bidders and notice of public hearing. All quantities are subject to revision by the Jurisdiction. Quantity changes which amount to twenty (20) percent or less of the amount bid shall not affect the unit bid price of that item.

Activity ID 08-2022-001

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TOTAL CONSTRUCTION COST

*Item does not have to be included in 4-year maintenance bond but shall be covered by a 1-year maintenance bond.

NOTE: It is understood that the above quantities are estimated for the purpose of this bid. All quantities are subject to revision by the City. Quantity changes which amount to twenty (20) percent or less of the total bid shall not affect the unit bid price of that item.
CONTRACT ATTACHMENT: ITEM 3 – COMPLETION PROVISIONS

The Contractor hereby agrees to:

1. Commence the work on or before a date to be specified in a written Notice to Proceed by the City and to fully complete all work no later than February 15, 2023; and to pay liquidated damages for noncompliance with said completion provision in the amount of one thousand and no/100 dollars ($1,000.00) for each calendar day thereafter.

2. Undertake and schedule work in compliance with the Intermediate Completion Date requirements as described below. The work to be completed by the intermediate completion date shall be such work as required to satisfy the intermediate completion date descriptions.

**Intermediate Completion Date #1 (December 15th, 2022):**

The Contractor shall fully complete construction of all work at the stormwater pump stations included in the project, including start-up and testing by December 15th, 2022; and to pay liquidated damages for noncompliance with said completion provisions in the amount of one thousand and no/100 dollars ($1,000.00) for each calendar day thereafter that all work, is not completed in accordance with the described Intermediate Completion Date #1 provision.

3. Undertake and schedule work in compliance with the working day completion provisions as described below. The work to be completed by the working day completion requirements shall be such work as required to satisfy the working day completion descriptions.

**Working Day Completion #1:**
Maintaining normal operation of all pump stations during construction is critical and Contractor shall obtain approval from the City prior to taking any pump station offline. Contractor shall request approval a minimum of five (5) days in advance of the date desired to take any pump station out of service. The City reserves the right to delay the date the pump station may be taken out of service due to current or anticipated rainfall or river stage. Contractor should anticipate the likelihood the start of work will be delayed due to rainfall or river conditions. There will be no adjustment of contract price as a result of the delay. Contractor shall have all pump station control panels re-energized and placed back in normal operation at the end of each working day. Noncompliance with said working day requirement shall result in payment of liquidated damages with said completion provisions in the amount of one thousand and no/100 dollars ($1,000.00) for each working day thereafter.

4. Pay separate sums of liquidated damages that will be assessed for each of the conditions described hereinbefore, and they shall be cumulative if multiple conditions have not been satisfied.
ENGINEERING DEPARTMENT  
CITY OF DES MOINES, IOWA  

SURETY’S BOND NO    

PERFORMANCE, PAYMENT & MAINTENANCE BOND  

KNOW ALL BY THESE PRESENTS:  

That we, _______________________________________, as Principal (the "Contractor" or "Principal"), and _______________________________________, as Surety, are held and firmly bound unto the City of Des Moines, as Obligee (the "Jurisdiction"), and to all persons who may be injured by any breach of any of the conditions of this Bond in the penal sum of ___________________________________________ dollars ($___________________), lawful money of the United States, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, legal representatives and assigns, jointly and severally, firmly by these presents.  

The conditions of the above obligations are such that whereas the Contractor entered into a contract with the Jurisdiction, bearing the date of ______________________, (the "Contract") wherein the Contractor undertakes and agrees to construct the following described improvements:  

City-Wide Pump Station Telog Communication System Conversions, 082022001  

The improvement includes upgrading the telemetry communication system and associated control equipment of thirty-two (32) pump stations with the contractor to provide all labor and all additional material and equipment necessary to complete the installations and make each location operational, including but not limited to Telog equipment enclosure, modifications to existing pump station control panels, wiring, conduit, mounting of new equipment, demolition, clean up, and all other associated work and incidental items; all in accordance with the contract documents including Plan File No. 642-154/175, located at thirty-two (32) pump stations in Des Moines, Iowa  

and to faithfully perform all the terms and requirements of the Contract within the time specified, in a good and workmanlike manner, and in accordance with the Contract Documents.  
Provided however, that one year after the date of acceptance by the Jurisdiction as complete, of the work under the above referenced Contract, the maintenance portion of this Bond shall continue in force but the penal sum for maintenance shall be reduced to ___________________________________________ dollars ($___________________), which is the cost associated with those items shown on the Proposal and in the Contract which require a maintenance bond period in excess of one year.  

It is expressly understood and agreed by the Contractor and Surety that the following provisions are a part of this Bond and are binding upon the Contractor and Surety, to-wit:  

1. PERFORMANCE: The Contractor shall well and faithfully observe, perform, fulfill and abide by each and every covenant, condition and part of the Contract and Contract Documents, by reference made a part hereof, and shall indemnify and save harmless the Jurisdiction from all outlay and expense incurred by the Jurisdiction by reason of the Contractor's default or failure to perform as required.  
The Contractor shall also be responsible for the default or failure to perform as required under the Contract and Contract Documents by all its subcontractors, suppliers, agents, or employees furnishing materials or providing labor in the performance of the Contract.
2. PAYMENT: The Contractor and Surety on this bond hereby agree to pay all just claims submitted by persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the performance of the Contract, including but not limited to claims for all amounts due for labor, materials, lubricants, oil, gasoline, repairs on machinery, equipment and tools, consumed or used by the Contractor or any subcontractor, wherein the same are not satisfied out of the portion of the contract price which the Jurisdiction is required to retain until completion of the improvement, but the Contractor and Surety shall not be liable unless the claims have been established as provided by law. The Contractor and Surety hereby bind themselves to the obligations and conditions set forth in Iowa Code Chapter 573.

3. MAINTENANCE: The Contractor and the Surety shall, at their own expense:
   A. Remedy any and all defects that may develop in or result from work to be performed under the Contract within the period of four (4) year(s) from the date of acceptance of the work under the Contract, by reason of defects in workmanship or materials used in construction of the work;
   B. Keep all work in continuous good repair; and
   C. Pay the Jurisdiction's reasonable costs of monitoring and inspecting to assure that any defects are remedied, and to repay the Jurisdiction all outlay and expense incurred as a result of Contractor's and Surety's failure to remedy any defect as required by this section.

Contractor's and Surety's obligation extends to defects in workmanship or materials not discovered or known to the Jurisdiction at the time the work was accepted.

4. GENERAL: Every Surety on this Bond shall be deemed and held bound, any contract to the contrary notwithstanding, to the following provisions:
   A. To consent without notice to any extension of time to the Contractor in which to perform the Contract;
   B. To consent without notice to any change in the Contract or Contract Documents, that increases the total contract price and the penal sum of this bond, provided that all such changes do not, in the aggregate, involve an increase of more than twenty percent of the total contract price, and that this Bond shall then be released as to such excess increase; and
   C. To consent without notice that this Bond shall remain in full force and effect until the contract is completed, whether completed within the specified contract period, within an extension thereof, or within a period of time after the contract period has elapsed and liquidated damages are being charged against the Contractor.

5. The Contractor and every Surety on this Bond shall be deemed and held bound, any contract to the contrary notwithstanding, to the following provisions:
   A. That no provision of this Bond or of any other contract shall be valid which limits to less than five years after the acceptance of the work under the Contract the right to sue on this Bond.
B. That as used herein, the phrase "all outlay and expense" is not to be limited in any way, but shall include the actual and reasonable costs and expenses incurred by the Jurisdiction including interest, benefits and overhead as applicable. Accordingly, "all outlay and expense" would include but not be limited to all contract or employee expense, all equipment usage or rental, materials, testing, outside experts, attorneys fees, (including overhead expenses of the Jurisdiction's staff attorneys), and all costs and expenses of litigation as they are incurred by the Jurisdiction. It is intended the Contractor and Surety will defend and indemnify the Jurisdiction on all claims made against the Jurisdiction on account of Contractor's failure to perform as required in the Contract and Contract Documents, that all agreements and promises set forth in the Contract and Contract Documents, in approved change orders, and in this Bond will be fulfilled, and that the Jurisdiction will be fully indemnified so that it will be put into the position it would have been in had the Contract been performed in the first instance as required.

C. In the event the Jurisdiction incurs any "outlay and expense" in defending itself with respect to any claim as to which the Contractor or Surety should have provided the defense, or in the enforcement of the promises given by the Contractor in the Contract, Contract Documents, or approved change orders, or in the enforcement of the promises given by the Contractor and Surety in this Bond, the Contractor and Surety agree that they will make the Jurisdiction whole for all such outlay and expense, provided that the Surety's obligation under this Bond shall not exceed 125% of the penal sum of this Bond.

In the event that any actions or proceedings are initiated with respect to this Bond, the parties agree that the venue thereof shall be Polk County, State of Iowa. If legal action is required by the Jurisdiction to enforce the provisions of this Bond or to collect the monetary obligation accruing to the benefit of the Jurisdiction, the Contractor and Surety agree, jointly and severally, to pay the Jurisdiction all outlay and expense incurred by the Jurisdiction. All rights, powers, and remedies of the Jurisdiction hereunder shall be cumulative and not alternative and shall be in addition to all rights, powers and remedies given to the Jurisdiction, by law. The Jurisdiction may proceed against the Surety for any amount guaranteed hereunder whether action is brought against the Contractor or whether or not the Contractor is joined in the action.

NOW THEREFORE, the condition of this obligation is such that if the Principal shall faithfully perform all of the promises of the Principal, as set forth and provided in the Contract, in the Contract Documents, and in this Bond, then this obligation shall be null and void, otherwise it shall remain in full force and effect.

When a word, term, or phrase is used in this Bond, it shall be interpreted or construed first as defined in this Bond, the Contract, or the Contract Documents; second, if not defined in the Bond, Contract, or Contract Documents, it shall be interpreted or construed as defined in applicable provisions of the Iowa Code; third, if not defined in the Iowa Code, it shall be interpreted or construed according to its generally accepted meaning in the construction industry; and fourth, if it has no generally accepted meaning in the construction industry, it shall be interpreted or construed according to its common or customary usage.
Failure to specify or particularize shall not exclude terms or provisions not mentioned and shall not limit liability hereunder. The Contract and Contract Documents are hereby made a part of this Bond.

Witness our hands, in triplicate, this ________ day of ______________________, 20______

PRINCIPAL:
________________________________________
Contractor

By
________________________________________
Signature

________________________________________
Title

FORM APPROVED BY:

________________________________________
Kathleen Vanderpool
Deputy City Attorney

SURETY:

________________________________________
Surety Company

By
________________________________________
Signature Attorney-in-Fact/Officer

________________________________________
Name of Attorney-in-Fact/Officer

________________________________________
Company Name

________________________________________
Company Address

________________________________________
City, State Zip Code

________________________________________
Company Telephone Number

NOTE:
1. All signatures on this performance, payment & maintenance bond must be original signatures in ink; copies or facsimile of any signature will not be accepted.

2. This bond must be sealed with the Surety's raised, embossed seal.

3. The Certificate or Power of Attorney accompanying this bond must be valid on its face and sealed with the Surety's raised, embossing seal.

4. The name and signature of the Surety's Attorney-in-Fact/Officer entered on this bond must be exactly as listed on the Certificate or Power of Attorney accompanying this bond.

5. This bond form must be utilized as printed; no additions/deletions/alterations are permitted, other than providing the required information.
1) AWARD OF CONTRACT

The apparent low Bidder on this project will be required to furnish executed contract; Performance, Payment, and Maintenance Bond; Certificate of Insurance; and NPDES Certification Statements, if required, in substantial compliance with the contract documents to the Engineering Department before 12:00 noon on Friday, June 10, 2022. Completed documents in accordance with the contract documents and acceptable to the City of Des Moines Engineering and Legal Departments will be presented to the City Council for award of this contract on Monday, June 13, 2022. This would allow construction to begin upon issuance of the Notice to Proceed by the City Engineer.

By submission of a bid, the Bidder agrees that if the Bidder fails to furnish said executed contract; Performance, Payment, and Maintenance Bond; Certificate of Insurance; and NPDES Certification Statements, if required, in substantial compliance with the contract documents to the Engineering Department before 12:00 noon on Friday, June 10, 2022; the amount of the Bidder's bid security may become the property of the City and may be retained--not as a penalty but as liquidated damages. The award of the contract may then, at the discretion of the City, be made to the next-lowest responsible Bidder, or the work may be re-advertised or may be constructed by the City in any legal manner. Notice to Proceed will not be issued until the Contractor's insurance is in compliance with the specifications.

The Bidder is reminded that all subcontractors must be approved by the City Council. The Council policy is that subcontractors be approved at the time the contract is awarded, if possible. The Bidder should submit a letter requesting approval of any subcontractors along with the subcontractor's NPDES Certification Statement, if required, at the time its executed contracts are submitted for approval.

2) CONTRACT COMPLIANCE PROGRAM


a. EEO Program – Complaints of discrimination in violation of the Des Moines Human Rights Ordinance, or corresponding state or federal law, should still be filed with the appropriate city, state, or federal agency. If a Contractor is found by one of these agencies to be engaging in illegal discrimination, the Contractor will be in breach of its contract with the City of Des Moines and appropriate action will be taken.

b. DBE/TSB Program: Certification – The City of Des Moines' program is a DBE/TSB Program whereby both certified DBEs and certified TSBs are equally eligible under the program. All DBEs shall be certified by the Iowa Department of Transportation (IDOT),
and the Certified Directory of DBEs is available at the following website

All TSBs shall be certified by the Iowa Economic Development Authority, and the
Certified Directory of TSBs is available at the following website
https://ioawaeda.microsoftermportals.com/tsb-search/. The TSB website allows the user to
search by name or other keyword. If the user enters the keyword "CONST" in the space
next to Service Description and clicks SEARCH, the database will provide a listing of all
TSBs that have identified various forms of construction as their type of work. The
Directories will not be printed in the contract documents. Copies of the DBE and TSB
Directories are available from the Engineering Department upon request.

c. DBE/TSB Program: Annual and Contract Goals – The City’s overall annual DBE/TSB
goal will be based on the IDOT DBE overall annual goal established for the corresponding
federal fiscal year as further adjusted and established by the Engineering Department to
c Consider such factors as the current capacity of DBEs/TSBs to perform work, differences
in the DBE versus TSB market, etc. By utilizing the IDOT overall annual DBE goal as the
City’s overall annual DBE/TSB goal, the goal will be independently reviewed annually
and updated regarding the availability of the DBEs that are ready, willing, and able to
perform work. Many DBEs are also certified as TSBs and the availability is similar. The
City’s overall annual DBE/TSB goal represents a target that the City would like to achieve
by including DBE/TSB participation on City contracts; and is not a mandatory goal for this
project. The Bidder is encouraged to use its best efforts to meet, and if possible exceed,
the City’s overall annual DBE/TSB goal.

3) ALTERNATE SALES AND USE TAX

Section 1020, 1.08, B, of the General Supplemental Specifications shall apply to this contract. The
Bidder should not include sales tax in the bid pursuant to Iowa Code. A sales tax exemption
certificate will be available for all material purchased for incorporation in the project. Complete
information on qualifying materials and supplies can be found at www.state.ia.us/tax, the Iowa
Department of Revenue and Finance’s (IDRF) web site. Links are found in the Business Taxes
and Local Government categories. Contact the IDRF at idrf@idrf.state.ia.us if you have questions
on this requirement.
SPECIAL PROVISIONS
TECHNICAL SPECIFICATIONS
ON
CITY-WIDE PUMP STATION TELOG COMMUNICATION SYSTEM CONVERSIONS
ACTIVITY ID 08-2022-001

Index

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ENGINEERING DEPARTMENT
CITY OF DES MOINES, IOWA

SPECIAL PROVISION
TECHNICAL SPECIFICATIONS
ON

CITY-WIDE PUMP STATION TELLOG COMMUNICATION SYSTEM CONVERSIONS
ACTIVITY ID 08-2022-001

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signed: Jacob D. Lucas, P.E.
Iowa License No. 23240
My license renewal date is December 31, 2023

Date: 3/28/2022

Detailed parts covered by this seal:

All
1 – ELECTRICAL WORK, GENERAL

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. The Contractor shall provide electrical work, complete and operable, in accordance with the Contract Documents.

B. The provisions of this section apply to all electrical sections.

C. The work of this section is required for operation of electrically-driven equipment provided under specifications in other divisions. The Contractor’s attention is directed to the requirement for proper coordination of the work of this section with the work of equipment specifications and the work of instrumentation sections.

D. Concrete, excavation, backfill, and steel reinforcement required for encasement, installation, or construction of the work of the various electrical sections is included as a part of the work under the respective sections.

1.02 REFERENCE STANDARDS

A. The work of this section shall comply with the following as applicable:

   NEC (NFPA 70)            National Electrical Code
   NETA                     International Electrical Testing Association
   NEMA 250                  Enclosure for Electrical Equipment (1000 Volts Maximum)

B. Electrical equipment shall be listed by and shall bear the label of Underwriters’ Laboratories, Inc. (UL) or an independent testing laboratory acceptable to the local code enforcement agency having jurisdiction.

C. Installation of electrical equipment and materials shall comply with OSHA Safety and Health Standards (29 CFR 1910 and 29 CFR 1926, as applicable), state building standards, and applicable local codes and regulations.

D. Where the requirements of the specifications conflict with UL, NEMA, NFPA, or other applicable standards, the more stringent requirements shall govern.
1.03 SIGNAGE AND MARKINGS

A. Identification: Provide danger, caution, and warning signs and equipment identification markings in accordance with applicable federal and state OSHA and NEC requirements.

B. Local Disconnect Switches
   1. Each local disconnect switch for motors and equipment shall be legibly marked to indicate its purpose unless the purpose is indicated by the location and arrangement.

C. Warning Signs
   1. 600 volts nominal, or less: Entrances to rooms and other guarded locations that contain live parts shall be marked with conspicuous signs prohibiting unqualified persons to enter.
   2. Over 600 volts: Buildings, rooms, or enclosures containing exposed live parts or exposed conductors operating at greater than 600 volts nominal shall be lockable. Permanent and conspicuous warning signs shall be provided reading as follows: DANGER – HIGH VOLTAGE – KEEP OUT.
   3. Indoor electrical installations that are open to unqualified persons and containing metal - enclosed switchgear, unit substations, transformers, and other similar associated equipment over 600 volts nominal shall be marked with appropriate caution signs.
   4. Outside branch circuits and feeders over 600 volts - Warning signs shall be posted in plain view where unauthorized persons might come in contact with live parts – "WARNING – HIGH VOLTAGE – KEEP OUT".

D. Isolating Switches: Isolating switches not interlocked with an approved circuit interrupting device shall be provided with a sign warning against opening them under load.

1.04 PERMITS AND INSPECTION

A. Permits shall be obtained and inspection fees shall be paid according to the General Conditions.

1.05 CONTRACTOR SUBMITTALS

A. Shop Drawings: Include the following:
   1. Complete material lists stating manufacturer and brand name of each item or class of material.
   2. Shop drawings for all grounding work not specifically indicated.
   3. Front, side, rear elevations, and top views with dimensional data.
   4. Location of conduit entrances and access plates.
   5. Component data.
6. Connection diagrams, terminal numbers, internal wiring diagrams, conductor size, and cable numbers.


8. Types of materials and finish.


10. Temperature limitations, as applicable.

11. Voltage requirement, phase, and current, as applicable.

12. Front and rear access requirements.

13. Test reports.

14. Grounding requirements.

15. Catalog cuts or photocopies of applicable pages of bulletins or brochures for mass produced, non-custom manufactured material. Catalog data sheets shall be stamped to indicate the project name, applicable Section and paragraph, model number, and options. This information shall be marked in spaces designated for such data in the Engineer's stamp.

B. Shop drawings shall be custom prepared. Drawings or data indicating "optional" or "as required" equipment are not acceptable. Options not proposed shall be crossed out or deleted from shop drawings.

C. Owner's Manuals: Complete information in accordance with project requirements.

D. Record Drawings: The Contractor shall show invert and top elevations and routing of all duct banks and concealed below-grade electrical installations. Record drawings shall be prepared, be available to the Engineer, and be submitted according to Division 01.

1.06 AREA DESIGNATIONS

A. General

1. Raceway system enclosures shall comply with Item No. 3 - Electrical Raceway Systems. Raceway system shall meet the NEMA environmental ratings noted below:

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<tr>
<th>AREA</th>
<th>NEMA ENCLOSURE CLASSIFICATION</th>
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<td>Indoors</td>
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<td>Outdoors</td>
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B. Material Requirements

1. NEMA 4X enclosures shall be 304 stainless steel.
2. NEMA 7 enclosures shall be cast aluminum where used with aluminum conduit; and cast iron when used with galvanized steel conduit.
3. NEMA 1, 3R, and 12 enclosures shall be steel coated with ANSI 61 grey paint. NEMA 4K, 7, and 9 shall not be coated.

1.07 TESTS

A. The Contractor shall be responsible for factory and field tests specified in Electrical sections and by the Engineer or other authorities having jurisdiction. The Contractor shall furnish necessary testing equipment and pay costs of tests, including replacement parts and labor, due to damage resulting from damaged equipment or from testing and correction of faulty installation.

B. Where test reports are indicated, proof of design test reports for mass-produced equipment shall be submitted with the shop drawings, and factory performance test reports for custom-manufactured equipment shall be submitted and be approved prior to shipment. Field test reports shall be submitted for review prior to Substantial Completion.

C. Equipment or material that fails a test shall be removed and replaced.

1.08 CONSTRUCTION SEQUENCING

A. Continuance of existing Pump Station operation during construction is critical. Work shall be scheduled, subject to Owner's approval, to minimize any required shutdown time. The Contractor shall submit a written request, including sequence and duration of activities to be performed during any shutdown. All Pump Station Control Panels shall be re-energized and placed back in normal operation at the end of each working day.
   1. Coordinate site work with Owner representative: Chad Christensen, (515) 237-1347, cachristensen@dmgov.org

B. Contractor shall provide staff to monitor Pump Station wetwell levels and manually engage pumps when Pump Station controls are de-energized for control panel wiring modifications.

C. Switching, safety tagging, etc., required for equipment shutdown and power outages shall be performed by the Contractor. In no case shall the Contractor begin any work without written authorization by the Engineer.

D. The Contractor shall visit the Sites before submitting a Bid to better acquaint itself with the work of this Contract. Lack of knowledge will not be accepted as a reason for granting extra compensation to perform the work.
PART 2 - PRODUCTS

2.01 GENERAL

A. Equipment and materials shall be new, shall be listed by UL, and shall bear the UL label where UL requirements apply. Equipment and materials shall be the products of experienced and reputable manufacturers in the industry. Similar items in the work shall be products of the same manufacturer. Equipment and materials shall be of industrial grade standard of construction.

B. Where a NEMA enclosure type is indicated in a non-hazardous location, the Contractor shall utilize that type of enclosure, despite the fact that certain modifications such as cutouts for control devices may negate the NEMA rating.

C. On devices indicated to display dates, the year shall be displayed as 4 digits.

2.02 MOUNTING HARDWARE

A. Miscellaneous Hardware
   1. Nuts, bolts, and washers shall be stainless steel.
   2. Threaded rods for trapeze supports shall be continuous threaded, stainless steel, 3/8" dia. minimum.
   3. Strut for mounting of conduits and equipment shall be stainless steel. Where contact with concrete or dissimilar metals may cause galvanic corrosion, suitable non-metallic insulators shall be utilized to prevent such corrosion. Aluminum strut shall not be utilized for free standing support frames. Strut shall be as manufactured by Unistrut, B-Line, or equal.
   4. Anchors for attaching equipment to concrete walls, floors and ceilings shall be stainless steel expansion anchors, such as "Rawl-Bolt," "Rawl-Stud" or "Lok-Bolt" as manufactured by Rawl; similar by Star, or equal. Wood plugs shall not be permitted.

2.03 ELECTRICAL IDENTIFICATION

A. Nameplates: Nameplates shall be fabricated from white-letter, black-face laminated plastic engraving stock, Formica type ES-1, or equal. Each shall be fastened securely, using fasteners of brass, cadmium plated steel, or stainless steel, screwed into inserts or tapped holes as required. Engraved characters shall be block style with no characters smaller than 1/8" top to bottom.

B. Conductor and Equipment Identification: Conductor and equipment identification devices shall be either imprinted plastic-coated cloth marking devices such as manufactured by Brady, Thomas & Betts, or equal, or shall be heat-shrink plastic tubing, imprinted split-sleeve markers cemented in place, or equal.
PART 3 - EXECUTION

3.01 GENERAL

A. Incidentals: The Contractor shall provide all materials and incidentals required for a complete and operable system, even if not required explicitly by the specifications or the drawings. Miscellaneous equipment and hardware considered incidental to the project include, but are not limited to, terminal blocks, wire termination lugs, pull boxes, etc.

B. Wiring shall be #12 AWG minimum, and conduits shall be 3/4" minimum (exposed) and 1" minimum (encased). Where circuits are combined in the same raceway, the Contractor shall derate conductor capacities in accordance with NEC requirements.

C. Workmanship: Materials and equipment shall be installed in strict accordance with printed recommendations of the manufacturer. Installation shall be accomplished by workers skilled in the work. Installation shall be coordinated in the field with other trades to avoid interferences.

D. Protection of Equipment and Materials: The Contractor shall fully protect materials and equipment against damage from any cause. Materials and equipment, both in storage and during construction, shall be covered in such a manner that no finished surfaces will be damaged, marred, or splattered with water, foam, plaster, or paint. Moving parts shall be kept clean and dry. The Contractor shall replace or refinish damaged materials or equipment, including faceplates of panels and switchboard sections as part of the work.

E. Incoming utility power equipment shall be provided in conformance with the utility's requirements.

3.02 CLEANING

A. Before final acceptance, the electrical work shall be thoroughly cleaned. Exposed parts shall be thoroughly cleaned of cement, plaster, and other materials. Oil and grease spots shall be removed with a non-flammable cleaning solvent. Such surfaces shall be carefully wiped and cracks and corners scraped out. Touch-up paint shall be applied to scratches on panels and cabinets. Electrical cabinets or enclosures shall be vacuum-cleaned.
PART 1 - GENERAL

1.01 THE REQUIREMENT

A. Conduit and equipment supports.

B. Anchors and fasteners.

1.02 REFERENCES

A. NECA - National Electrical Contractors Association.


1.03 REGULATORY REQUIREMENTS

A. Conform to requirements of ANSI/NFPA 70.

B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.04 CONTRACTOR SUBMITTALS

A. The Contractor shall submit shop drawings in accordance with Item No. 1 - Electrical Work, General.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Materials and Finishes: Provide adequate corrosion resistance; hangers and anchors materials shall match with type of conduit or equipment materials they are going to support.

B. Provide materials, sizes, and types of anchors, fasteners and supports to carry the loads of equipment and conduit.

C. Provide stainless steel supports in wet areas, corrosive areas and outdoors unless shown otherwise.
D. Anchors and Fasteners:
   1. Concrete Structural Elements:
      a. Use steel or malleable iron concrete inserts set in place prior to placing new concrete.
      b. Use expansion anchors not less than 1/4” bolt size and not less than 1-1/8” embedment in existing concrete.
         1) Use power set fasteners not less than 1/4” diameter with depth of penetration not less than 3” in existing concrete.
         2) Use vibration and shock resistant anchors and fasteners for attaching to concrete ceilings.
            a) Steel Structural Elements: Use beam clamps or spring steel clips.
            b) Concrete Surfaces: Use self-drilling anchors or expansion anchors.
            c) Hollow Masonry, Plaster and Gypsum Board Partitions: Use toggle bolts and hollow wall fasteners.
            d) Solid Masonry Walls: Use expansion anchors.
            e) Sheet Metal: Use sheet metal screws.
            f) Wood Elements: Use wood screws.

2.02 MANUFACTURERS

   A. Superstrut, Unistrut, B-line, or equal.

PART 3 - EXECUTION

3.01 EXAMINATION

   A. Verify all channels, fasteners, anchors and miscellaneous equipment are suitable for the application.

3.02 INSTALLATION

   A. Install products in accordance with manufacturer's instructions.

   B. Provide anchors, fasteners, and supports in accordance with NECA "Standard of Installation".

   C. Do not fasten supports to pipes, ducts, mechanical equipment and conduit.
PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. The Contractor shall provide electrical raceway systems, complete and in place, in accordance with the Contract Documents.

1.02 CONTRACTOR SUBMITTALS

A. Furnish submittals in accordance with Item No. 1 - Electrical Work, General.

B. Shop Drawings
   1. Complete catalog cuts of raceways, fittings, boxes, supports, and mounting hardware, marked where applicable to show proposed materials and finishes.
   2. Dimensioned layout drawings of cable tray routings, including elevations.

PART 2 - PRODUCTS

2.01 GENERAL

A. Pull and junction boxes, fittings, and other indicated enclosures that are dedicated to the raceway system shall comply with this section.

2.02 CONDUIT

A. Rigid Galvanized Steel (RGS) Conduit
   1. Rigid steel conduit shall be mild steel, hot-dip galvanized inside and out.
   2. Rigid steel conduit shall be manufactured in accordance with ANSI C80.1 - Rigid Steel Conduit, Zinc Coated, and UL-6.
   3. Suitable for use as exposed conduit.
   4. Manufacturers, or equal.
      a. LTV Steel
      b. Triang e
      c. Wheatland Tube

B. Rigid Non-Metallic Conduit
   1. Rigid non-metallic conduit shall be Schedule 40 pvc, sunlight resistant.
   2. Rigid non-metallic conduit shall be manufactured in accordance with NEMA TC-2 - Electrical Plastic Tubing and Conduit, and UL-651 - Standard for Rigid Non-metallic Conduit.
   3. Suitable for use as direct bury conduit.
4. Manufacturers, or equal.
   a. Carlon
   b. Concux

C. Electrical Metallic Tubing (EMT) or intermediate conduit (IMC) will not be accepted.

2.03 FITTINGS AND BOXES

A. General
   1. Cast and malleable iron fittings for use with metallic conduit shall be the threaded type with 5 full threads.
   2. Fittings and boxes shall have neoprene gaskets and non-magnetic stainless steel screws. Covers shall be attached by means of holes tapped into the body of the fitting. Covers for fittings attached by means of clips or clamps will not be acceptable.
   3. Boxes larger than standard cast or malleable types shall be 304 stainless steel, NEMA 4X.
   4. In outdoor areas, conduit shall be terminated in raintight hubs as manufactured by Myers, O.Z. Gedney, Appleton, or equal. In other than outdoor areas, sealed locknuts and bushings shall be used.
   5. Conduit, fittings, and boxes in hazardous locations shall be suitable for the Class and Division indicated.

B. Malleable Iron Fittings and Boxes
   1. Fittings and boxes for use with galvanized steel conduit shall be of malleable iron or gray-iron alloy with zinc plating.
   2. Manufacturers, or equal.
      a. O.Z. Gedney
      b. Crouse-Hinds
      c. Appleton

C. PVC Fittings and Boxes
   1. Fittings for use with rigid non-metallic conduit shall be PVC, solvent welded type.
   2. Boxes shall be PVC or fiberglass reinforced polyester (FRP).
   3. Manufacturers, or equal.
      a. Carlon
      b. Crouse-Hinds
      c. Hoffman
   4. Provide welding solvent as required for installation of non-metallic conduit and fittings.
D. Stainless Steel Boxes
   1. Stainless steel boxes shall be used where indicated.
   2. Stainless steel boxes shall be NEMA 4X, Type 304.
   3. Stainless steel shall be minimum 14-gauge thickness, with a brushed finish.
   4. Doors shall have full length stainless steel piano hinges. Non-hinged boxes are not acceptable.
   5. Manufacturers, or equal.
      a. Hoffman
      b. Rohn
      c. Hammond

2.04 ACCESSORIES

A. Identification Devices
   1. Raceway tags: round, permanent, non-ferrous metal; pressure stamped, embossed or engraved.
   2. Warning tape: red 4 mil polyethylene; minimum width of 6"; minimum 1" high permanen: black lettering imprinted continuously over entire length; Panduit type HTDU, or equal.

PART 3 - EXECUTION

3.01 GENERAL

A. Wiring shall be run in raceway unless indicated otherwise.

B. Raceways shall be installed between equipment as indicated. Raceway systems shall be electrically and mechanically complete before conductors are installed. Bends and offsets shall be smooth and symmetrical, and shall be accomplished with tools designed for this purpose. Factory elbows shall be utilized wherever possible.

C. Where raceway routings are indicated on plan views, follow those routings to the extent possible.

D. Where raceways are indicated but routing is not indicated, such as home runs or on conduit developments and schedules, raceway routings shall be the Contractor's choice and in strict accordance with the NEC and customary installation practice. Raceway shall be encased, exposed, concealed, or under floor as indicated, except that conduit in finished areas shall be concealed unless specifically indicated otherwise.

E. Routings shall be adjusted to avoid obstructions. Coordinate between trades prior to installation of raceways. Lack of such coordination shall not be justification for extra compensation, and removal and re-installation to resolve conflicts shall be by the Contractor as part of the work.
F. Exposed raceways shall be installed parallel or perpendicular to structural beams.

G. Install expansion fittings with bonding jumpers wherever raceways cross building expansion joints.

3.02 CONDUIT

A. Exposed conduit shall be rigid galvanized steel unless indicated otherwise:

B. Conduit concealed, buried, or encased in concrete, except for analog control conduit which shall be PVC coated RGS, shall be Schedule 40 PVC. Where conduit emerges from concrete encasement, a PVC coated RGS elbow shall be utilized for transition from the concrete. Conduit shall emerge from the concrete perpendicular to the surface whenever possible.

C. Exposed conduit shall be 3/4" minimum trade size. Encased conduit shall be 1" minimum trade size. Supports shall be installed at distances required by the NEC.

D. Conduit shall not be encased in the bottom floor slab below grade.

E. Concrete cover for conduit and fittings shall not be less than 1-1/2" for concrete exposed to earth or weather, or less than 3/4" for concrete not exposed to weather or in contact with the ground.

F. Wherever possible, conduit runs shall slope to drain at one or both ends of run. Wherever conduit enters substructures below grade, the conduit shall be sloped to drain water away from the structure. Extreme care shall be taken to avoid pockets or depressions in conduit.
4 - WIRES AND CABLES

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. The Contractor shall provide wires and cable, complete and operable, in accordance with the Contract Documents.

1.02 CONTRACTOR SUBMITTALS

A. The Contractor shall submit shop drawings in accordance with Item No. 1 - Electrical Work, Genera.

PART 2 - PRODUCTS

2.01 GENERAL

A. Conductors, include grounding conductors, shall be copper. Aluminum conductor wire and cable will not be permitted. Insulation shall bear UL label, the manufacturer's trademark, and identify the type, voltage, and conductor size. All conductors except flexible cords and cables, fixture wires, and conductors that form an integral part of equipment such as motors and controllers shall conform to the requirements of Article 310 of the National Electric Code, latest edition, for current carrying capacity. Flexible cords and cables shall conform to Article 400, and fixture wires shall conform to Article 402. Wiring shall have wire markers at each end.

2.02 LOW VOLTAGE WIRE AND CABLE

A. Power and Lighting Wire
   1. Wire rating for 600 volts in duct or conduit for all power and lighting circuits shall be Class B Type XHHW cross-linked polyethylene conforming to UL-44 - UL Standard for Thermoset-Insulated Wires and Cables, or THHN/THWN.
   2. Conductors for feeders as defined in Article 100 of the NEC shall be sized to prevent a voltage drop exceeding 3% at the farthest outlet of power, heating, and lighting loads, or combinations of such loads, and where the maximum total voltage drop on both feeders and branch circuits to the farthest connected load does not exceed 5%.
   3. Conductors for branch circuits as defined in Article 100 of the NEC, shall be sized to prevent voltage drop exceeding 3% at the farthest connected load or combinations of such loads and where the maximum total voltage drop on both feeders and branch circuits to the farthest connected load does not exceed 5%.
   4. Wiring for 600 volt class power and lighting shall be as manufactured by General Cable, Okonite, or Rome Cable.
B. Control Wire
1. Control wire in duct or conduit shall be the same type as power and lighting wire indicated above.
2. Control wiring shall be No. 14 AWG.
3. Control wires at panels and cabinets shall be machine tool grade type MTW, UL approved, rated for 90°C at dry locations, and be as manufactured by American, Carol Cable, or equal.

C. Instrumentation Cable
1. Instrumentation cable shall be rated at 600 volts.
2. Individual conductors shall be No. 16 AWG stranded, tinned copper. Insulation shall be color coded polyethylene: black-red for two-conductor cable and black-red-white for three-conductor cable.
3. Instrumentation cables shall be composed of the individual conductors, an aluminum polyester foil shield, a No. 18 AWG stranded tinned copper drain wire, and a pvc outer jacket with a thickness of 0.048".
4. Single pair, No. 16 AWG, twisted, shielded cable shall be Belden Part No. 9342, or equal.
5. Single triad, No. 16 AWG, twisted, shielded cable shall be Belden Part No. 1119A, or equal.

D. Ethernet Data Cable
2. Shielded with stranded conductors.
3. 4 pair, 23 AWG; capable of transmitting data up to 1000 MBPS.
4. Heavy duty oil and sunlight resistant PVC jacket with sequential markings at 2' interval; NEC rated and UL listed.
5. Belden or equal.

2.03 CABLE TERMINATIONS

A. Compression connectors shall be Burndy "Hi Lug", Thomas & Betts "Sta-Kon", or equal. Threaded connectors shall be split bolt type of high strength copper alloy. Pressure type, twist-on connectors will not be acceptable.

B. Pre-insulated fork tongue lugs shall be Thomas & Betts, Burndy, or equal.

C. General purpose insulating tape shall be Scotch No. 33, Plymouth "Slip-knot", or equal. High temperature tape shall be polyvinyl as manufactured by Plymouth, 3M, or equal.

D. Labels for coding 600 volt wiring shall be computer printable or pre-printed, self-laminating, self-sticking, as manufactured by W.H. Brady, 3M, or equal.
PART 3 - EXECUTION

3.01 GENERAL

A. The Contractor shall provide and terminate all power, control, and instrumentation conductors except where indicated.

3.02 INSTALLATION

A. Conduits shall not be pulled into raceway until raceway has been cleared of moisture and debris.

B. Pulling tensions on raceway cables shall be within the limits recommended by the cable manufacturer. Wire pulling lubricant, where needed, shall be UL approved.

C. Instrumentation wire shall not be run in the same raceway with power and control wiring except where specifically indicated.

D. Wire in panels, cabinets, and wireways shall be neatly grouped using nylon tie straps, and shall be fanned out to terminals.

3.03 SPLICES AND TERMINATIONS

A. General
   1. Wire taps and splices shall be properly taped and insulated according to their respective classes.
   2. In general, there shall be no cable splices in underground manholes or pullboxes. If splices are necessary, the cables shall be brought aboveground and terminated in a NEMA 4X, stainless steel terminal or splice cabinet on a concrete pad.
   3. Stranded conductors shall be terminated directly on equipment box lugs making sure that all conductor strands are confined within lug. Use forked-tongue lugs where equipment box lugs have not been provided.

B. Control Wire and Cable
   1. Control conductors shall be spliced or terminated only at the locations indicated and only on terminal strips or terminal lugs of vendor furnished equipment.

C. Instrumentation Wire and Cable
   1. Shielded instrumentation cables shall be grounded at one end only, preferably the receiving end on a 4-20 mA system.
   2. Two- and three-conductor shielded cables installed in conduit runs which exceed available standard cable lengths may be spliced in pullboxes. Such cable runs shall have only 1 splice per conductor.
D. Power Wire and Cable
   1. All 120/208-volt, 120/240-volt, and 480/277-volt branch circuit conductors may be spliced in suitable fittings at locations determined by the Contractor.
   2. Splices to motor leads in motor terminal boxes shall be wrapped with mastic material to form a mold and then shall be taped with a minimum of 2 layers of varnished cambric tape overtaped with a minimum of 2 layers of high temperature tape.
   3. Shielded power cable shall be terminated with pre-assembled stress cones in a manner approved by the cable and terminal manufacturer. The Contractor shall submit the proposed termination procedure as a shop drawing.

3.04 CABLE IDENTIFICATION

   A. General: Wires and cables shall be identified for proper control of circuits and equipment and to reduce maintenance effort.

3.05 TESTING

   A. Continuity Test: Control and instrumentation cables shall be tested for continuity, polarity, undesirable ground, and origination. Such tests shall be performed after installation and prior to placing cables in service.
PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. The Contractor shall provide the electrical grounding system, complete and operable, in accordance with the Contract Documents.

B. The requirements of Item No. 1 - Electrical Work, General apply to this section.

C. Single Manufacturer: Like products shall be the end product of one manufacturer in order to achieve standardization of appearance, operation, maintenance, spare parts and manufacturer's services.

1.02 CONTRACTOR SUBMITTALS

A. Furnish submittals in accordance with Item No. 1 - Electrical Work, General.

B. Shop Drawings: Manufacturer's product information for connections, clamps, and grounding system components, showing compliance with the requirements of this section.

PART 2 - PRODUCTS

2.01 GENERAL

A. Components of the grounding electrode system shall be manufactured in accordance with ANSI/UL 467 - Standard for Safety Grounding and Bonding Equipment, and shall conform to the applicable requirements of National Electrical Code Article 250 and local codes.

2.02 GROUNDING SYSTEM

A. Exposed grounding connectors shall be of the compression type (connector to cable), made of high copper alloy, and be manufactured specifically for the particular grounding application. The connectors shall be Burndy, O.Z. Gedney, or equal.

B. Grounding clamps shall be used to bond each separately derived system to the grounding electrode conductors.
C. Equipment Grounding Circuit Conductors
   1. These conductors shall be the same type and insulation as the load circuit conductors. The minimum size shall be as outlined in Table 250.122 of the National Electrical Code, unless indicated otherwise.
   2. Metallic conduit systems shall have equipment grounding wires as well as being equipment grounding conductors themselves.

D. Manufacturers of grounding materials shall be Copperweld, Blackburn, Burndy, or equal.

PART 3 - EXECUTION

3.01 GROUNDING

A. Provide a separate grounding conductor, securely grounded in each raceway independent of raceway material.

B. Size as given on the conduit schedule and in accordance with the NEC-Article 250.

C. Route conductors inside raceway.

D. Provide a green insulated wire as grounding jumper from the ground screw to a box grounding screw and, for grounding type devices, to equipment grounding conductor.

E. Shield Grounding
   1. Shielded instrumentation cable shall have its shield grounded at one end only unless shop drawings indicate the shield will be grounded at both ends.
   2. The grounding point shall be at the control panel or otherwise at the receiving end of the signal carried by the cable.
   3. Termination of shield drain wire shall be on its own terminal screw.
   4. Termination screws shall be jumpered together using manufactured terminal block jumpers.
   5. Connect on to the ground bus shall be via a green No. 12 conductor to the main ground bus for the panel.
6 – PROCESS CONTROL AND INSTRUMENTATION SYSTEM

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. The Process Control and Instrumentation Systems (PCIS) shall be furnished, complete and operable, as described herein. Control panels, components, and related programming and setup shall be consistent at all applicable sites.

B. The PCIS provider shall be responsible for coordinating

C. The requirements of this section apply to all components of the PCIS unless indicated otherwise.

D. Related work specified elsewhere:
   1. Item No. 7 - Control Panels.
   2. Item No. 8 – Control Descriptions.

1.02 REFERENCES

A. National Fire Protection Association (NFPA):

B. National Electrical Manufacturers Association (NEMA):
   1. NEMA ICS-2 - Industrial Control Devices, Controllers, and Assemblies.
   2. NEMA 250 - Enclosures for Electrical Equipment.

C. Underwriters Laboratories (UL):
   1. UL 508 - Industrial Control Equipment.

1.03 GENERAL

A. The Contractor shall use a Controls Integrator (CI) and qualified electrical installers to furnish, install, and place into service process instrumentation, controls and appurtenant work as specified and shown.

B. Contractor shall assign to the CI full responsibility for the functional operation of instrumentation and integrated controls systems. The Controls Integrator shall:
   1. Perform engineering required to select, to furnish, to supervise installation and connection, to calibrate, and to place into operation additional sensors, instruments, controls, accessories, and other equipment as specified.
2. Be responsible for the integration of related systems and shall ensure compatibility of components through the coordination of all hardware, signal converters, communications software and accessories.

3. Be under direct, written agreement with the Contractor and comply with specified requirements of these Documents.

C. Work specified in Items No. 6 - Process Control and Instrumentation System, No. 7 - Control Panel and No. 8 - Control Descriptions includes furnishing, installing, start-up, testing and adjusting of all required equipment, including instruments, equipment, hardware, software, wiring, accessory equipment, and training to provide a completely operational process control and instrumentation system.

D. It shall be the responsibility of the Contractor through use of the CI to furnish a complete and fully operating system; The Contractor shall be responsible for all details which may be necessary to properly install, adjust and place in operation the complete installation; The Contractor shall assume full responsibility for additional costs which may result from unauthorized deviations from the Contract Documents.

1.04 CONTROLS INTEGRATOR EXPERIENCE AND CAPABILITIES

A. The CI shall be normally engaged in assembly, installation, repair, and maintenance of process control and instrumentation systems.

B. The CI shall have qualified, trained service personnel on staff who are capable of programming, maintaining and adjusting the system; The CI shall be capable of offering an extended service contract after completion of the warranty period, including 24 hour, 7 day a week emergency services.

C. The CI shall have service and parts office within 100 miles of project site, shall be able to provide service within time period acceptable to the Owner; the local office shall have full-time service personnel.

D. The Controls Integrator shall be one of the following companies in full compliance with the Specifications:
   1. Electric Pump/Starinet; Contact: Dave Bloch (515) 265-2222
daveb@electricpump.com
   2. Jetco; Contact John Whitacre (515) 967-5874 jwhitacre@jetcoelectric.com

1.05 SUBMITTALS

A. Submit informational literature/data for following materials and equipment in accordance with general procedures set forth in specifications:
   1. All equipment and components indicated on drawings and specified in this section.
B. Submit shop drawings for following materials and equipment in accordance with general procedures set forth in specifications:
   1. Panel drawings including system schematic drawings, terminal numbering, component schematic drawings, dimension drawings, layout drawing and nameplate schedule.
   2. Overall system diagram showing all components, converters, cables, and connectors.
   3. The submittal shall address all hardware and software to be supplied. In addition, include:
      a. Identification of the respective responsibilities of each party to the project. Including what is provided by the system manufacturer, what is to be subcontracted etc.
      b. Description of the major user related features and operating characteristics of the proposed system.
      c. Description of all master site hardware and software updates including examples of HMI and PC SCADA displays, control loops, reports, and how the operator will interface with the system to achieve each specified function.
      d. Description and operation of all required configuration features of the I/O and local and remote control loop characteristics.
      e. Description containing startup implementation plan, participant's responsibilities and a schedule of events.
      f. All significant equipment to be supplied shall be listed followed by descriptive data sheets. The equipment list shall include each component name, manufacturer, model number, a description of the operation, quantity supplied, and any special setup and operation and maintenance characteristics.
      g. Drawings of equipment to be supplied shall include as a minimum, overall dimension details for each unit including installation arrangements, door mounted operator devices and instruments. Wiring diagrams of all system components including field device connections shall be included and specific installation wiring responsibilities identified.

C. Operations and Maintenance (O&M) Manuals: submit minimum of five (5) sets of operation and maintenance manuals containing:
   1. A detailed written description of system hardware, software, and system operation shall be provided. The description of hardware and software shall identify pertinent references to sections of standard hardware and software manuals where operational procedures are detailed. Control loops shall be fully described in the O&M manual.
   2. Panel equipment, field devices and instruments, including "as-built" system schematics.
   3. Final copy of PLC program on 8-1/2" x 11" sheets in ladder format including verbal description of each rung's function.
   4. PLC program burned on DVD.
   5. Point lists for all PLC inputs/outputs; identify point number (tag), point description, point type, range in engineering units (if analog point), PLC number, rack and slot number, and point address.
D. Final as-built drawings.

E. All submittals bound in 3-ring binders with labeled tabs separating sections.

1.06 GUARANTEE

A. Contractor shall guarantee operation of system and that materials and workmanship of equipment be free from defects for period as defined in General Conditions of project manual providing equipment has been operated and maintained in accordance with manufacturer's recommendations.

1.07 WARRANTY

A. Controls Integrator shall provide a comprehensive two (2) year parts and labor warranty for complete control system.

1.08 TESTING AGENCY CERTIFICATION

A. Panel furnished under this section constructed in accordance with UL 508A.

B. Panel shop-inspected by UL or constructed in UL-recognized facility; completed panel shall bear serialized UL label indicating acceptance under Standard 508A.

PART 2 - PRODUCTS

2.01 GENERAL

A. Code and Regulatory Compliance: PCIS work shall conform to or exceed the applicable requirements of the National Electrical Code.

B. Current Technology: Meters, instruments, and other components shall be the most recent field-proven models marketed by their manufacturers at the time of submittal of the Shop Drawings unless otherwise required to match existing equipment.

C. Hardware Commonality: Instruments which utilize a common measurement principle (for example, d/p cells, pressure transmitters, level transmitters that monitor hydrostatic head) shall be furnished by a single manufacturer. Panel mounted instruments shall have matching style and general appearance. Instruments performing similar functions shall be of the same type, model, or class, and shall be from a single manufacturer.
D. Loop Isolators and Converters: Signal isolators shall be provided as required to ensure adjacent component impedance match where feedback paths may be generated, or to maintain loop integrity during the removal of a loop component. Dropping precision wirewound resistors shall be installed at all field side terminations in the control panels to ensure loop integrity. Signal conditioners and converters shall be provided where required to resolve any signal level incompatibilities or provide required functions.

E. Environmental Suitability: Indoor and outdoor control panels and instrument enclosures shall be suitable for operation in the ambient conditions associated with the locations designated in the Contract Documents. Heating, cooling, and dehumidifying devices shall be provided in order to maintain all instrumentation devices 20% within the minimums and maximums of their rated environmental operating ranges. The Contractor shall provide power wiring for these devices. Enclosures suitable for the environment shall be furnished. All instrumentation in hazardous areas shall be suitable for use in the particular hazardous or classified location in which it is to be installed.

F. Signal Levels: Analog measurements and control signals shall be as indicated herein, and unless otherwise indicated, shall vary in direct linear proportion to the measured variable. Electrical signals outside control panels shall be 4 to 20 ma. dc except as indicated. Signals within enclosures may be 1 to 5 volts dc. Electric signals shall be electrically or optically isolated from other signals. Pneumatic signals shall be 3 to 15 psig with 3 psig equal to 0% and 15 psig equal to 100%.

G. Alternative Equipment and Methods: Equipment or methods requiring redesign of any project details are not acceptable without prior written approval of the Engineer through the "or equal" process. Any proposal for approval of alternative equipment or methods shall include evidence of improved performance, operational advantage, and maintenance enhancement over the equipment or method indicated, or shall include evidence that an indicated component is not available.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General

1. Equipment Locations: The monitoring and control system configurations indicated are diagrammatic. The locations of equipment are approximate. The exact locations and routing of wiring and cables shall be governed by site conditions and physical interferences and by the location of electrical terminations on equipment. Equipment shall be located and installed so that it will be readily accessible for operation and maintenance. Where job conditions require reasonable changes in approximated locations and arrangements, or when the Owner exercises the right to require changes in location of equipment which do not impact material quantities or cause material rework, the Contractor shall make such changes without additional cost to the Owner.
B. Conduit, Cables, and Field Wiring
   1. Conduit shall be provided under various electrical sections without delay to the work of Items No. 6 - Process Control and Instrumentation System, No. 7 - Control Panel and No. 8 - Control Descriptions.
   2. Process equipment control wiring, 4-20 mA signal circuits, signal wiring to field instruments, PLC input and output wiring and other field wiring and cables shall be provided under various electrical sections.
   3. Terminations and wire identification at PCIS equipment furnished under this or any other division shall be provided under Items No. 6 - Process Control and Instrumentation System, No. 7 - Control Panel and No. 8 - Control Descriptions.

C. Ancillary Devices: The Contract Documents show all necessary conduit and instruments required to make a complete instrumentation system. The Contractor shall be responsible for providing any additional or different type connections as required by the instruments and specific installation requirements. Such changes shall not be a basis of claims for extra work or delay.

3.02 CALIBRATION

A. General: Devices provided under Items No. 6 - Process Control and Instrumentation System, No. 7 - Control Panel and No. 8 - Control Descriptions shall be calibrated according to the manufacturer's recommended procedures to verify operational readiness and ability to meet the indicated functional and tolerance requirements.

3.03 START-UP

A. The Controls Integrator shall provide skilled programmer/instrumentation engineer or technician who shall complete troubleshooting and start-up to place entire system into satisfactory operation; engineer or technician shall make necessary inspection of completed installation, make necessary final field adjustments and make program revisions as required for start-up.

B. Demonstrate proper operation of all system features and functions to Owner and Engineer. Coordinate point-by-point I/O checkout of data logging system. Ensure cellular network is functioning correctly and relaying process data and alarms.

C. Coordinate start-up scheduling with Owner and Engineer. Submit written schedule with detailed list of commissioning activities with proposed timeline for Owner review and approval. Owner personnel shall be notified one week in advance of startup.
3.04 ON-SITE SERVICES

A. In addition to other services specified including start up, provide competent technician or programmer/instrumentation engineer to perform following services at times approved by Owner:

1. Software revisions and training: Four 8 hour days on-site to train Owner's personnel on:
   a. Operation and maintenance of all equipment furnished.
   b. SCADA system operations.
   c. PLC programming.
7 – CONTROL PANEL

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

   A. General: The Contractor shall provide a control panel, complete and operable, in accordance with the Contract Documents.

   B. The requirements of Item No. 6 - Process Control and Instrumentation System apply to this section.

1.02 CONTRACTOR SUBMITTALS

   A. General: Submittals shall be furnished in accordance with Item No. 1 - Electrical Work, General.

   B. Control Panel Engineering Submittal: The Contractor shall submit a control panel engineering submittal (CPES) for the control panel. The CPES shall completely define and document the construction, finish, layout, power circuits, signal and safety grounding circuits, fuses, circuit breakers, signal circuits, internally mounted instrumentation, face plate mounted instrumentation components, internal panel arrangements, and external panel arrangements. All panel drawings shall, as a minimum, be "B" size with all data sheets and manufacturer specification sheets being "A" size. The submittal shall be in conformance with ISA-520 - Standard Forms for Process Measurement and Control Instruments, Primary Elements and Control Valves, shall be submitted as a singular complete bound volume or multi-volume package within 120 calendar days after Notice to Proceed, and shall have the following contents:

   1. A complete index shall appear in the front of the bound volume. Panel tagging and nameplate nomenclature shall be consistent with the requirements of the Contract Documents.

   2. Scaled physical arrangement drawings drawn to scale which define and quantify the physical groupings comprising control panel sections, auxiliary panels, subpanels, and racks. Cutout locations with nameplate identifications shall be shown.

   3. Front of panel layout for the control panel.

   4. Schematic/elementary diagrams shall depict all control devices and circuits and their functions.

   5. Wiring/connection diagrams shall locate and identify electrical devices, terminals, and interconnecting wiring. These diagrams shall show interconnecting wiring by lines, designate terminal assignments, and show the physical location of all electrical and control devices.
6. Interconnection diagrams shall locate and identify all external connections between the control panel/control panel devices and associated equipment. These diagrams shall show interconnecting wiring by lines, designate terminal assignments, and show the physical location of all panel ingress and egress points.

7. A bill of material which enumerates all devices associated with the control panel.

8. Submit informational literature/data for all components including but not limited to Control Panel, PLC hardware and software, etc.

9. Programmable Logic Controller (PLC) programs in ladder format including verbal description of each rung's function; assign point numbers to all inputs and outputs, and show point numbering in PLC program.

10. Proposed graphic displays; submit actual hardcopy of programmed graphic screens.

C. Operations Manual: Provide operations and maintenance information for the following:
   1. Panel equipment, field devices and instruments, including "as-built" system schematics.
   2. Final copy of PLC program on 8-1/2" x 11" sheets in ladder format including verbal description of each rung's function.
   3. USB flash drive containing final PLC program and final distributed control software program.
   4. Complete software documentation including programming information and operator's guides.
   5. Point lists for all PLC inputs/outputs; identify point number (tag), point description, point type, range in engineering units (if analog point), PLC number, rack and slot number, and point address.

D. All submittals shall be bound in 3-ring binders with labeled tabs separating each section.

1.03 EXTENDED PERIOD FOR CORRECTION OF DEFECTS

A. The Contractor shall correct all defects in accordance with Item No. 6 - Process Control and Instrumentation System.

PART 2 - PRODUCTS

2.01 GENERAL

A. Environmental Suitability: The control panel shall be suitable for operation in the ambient conditions associated with the location designated in the Contract Documents. Heating, cooling, and dehumidifying devices shall be provided as necessary in order to maintain all instrumentation devices 20% within the minimums and maximums of their rated environmental operating ranges. The Contractor shall provide all power wiring for these devices. Enclosures suitable for the environment shall be provided.
B. The RTU Control Panel control circuits shall be 50 V or less, to meet data logger input requirements, minimize Hazard Category and risk of Arc-Flash. Control conductors shall be provided in accordance with the indicated requirements.

C. The RTU Control Panels shall have 120VAC line voltage sourced from site respective Pump Station Control Panel. Supply voltage shall be sourced from the line side of existing panel single-phase fuse/circuit breaker such that when the Pump Station Control Panel circuit breaker is disconnected the RTU Control Panel will remain energized.

D. Each source of foreign voltage shall be isolated by providing disconnecting or pull-apart terminal blocks or a disconnect operable from the control panel front. Each control panel shall be provided with identified terminal strips for the connection of all external conductors. The Contractor shall provide sufficient terminal blocks to connect 25% additional conductors for future use.

E. Control panel enclosures shall be mounted a minimum of 3’ above finished grade elevation.

2.02 CONTROL PANELS

A. General
   1. Contractor shall be responsible for modifying existing Pump Station Control Panel(s) and/or remote I/O enclosures to facilitate interface of required status and alarm signals to new RTU Control Panel.
   2. Panel modifications shall include, but not be limited to, demolition of existing radio telemetry equipment and cabling, sealing of enclosure cable penetrations, addition of field wiring terminals, terminal jumpers, analog splitters and control wiring. Contractor shall field verify field wiring terminal locations to source 120VAC control circuits and route to interposing relays mounted within RTU Control Panel.
   3. Wiring schematics for existing Pump Station Control Panels are available upon request from City of Des Moines.

B. RTU Control Panel
   1. Furnished by Controls Integrator.
   2. The control panel shall be a single door, NEMA Type 4X enclosure.
   3. Constructed of 12-gauge steel with continuously welded seams, ground smooth.
   4. Provide lifting eyes on top of enclosure.
   5. Provide panel with high-impact thermoplastic data pocket for storage of wiring schematics.
   6. Panel shall have seamless foam-in-place, on-piece gasket to provide oil-tight and dust-tight seal against contaminants.
   7. Quarter-turn door latching system with pad-lockable handle.
   8. Finish shall be brushed 304 stainless steel, no other colors will be accepted.
9. Control panel enclosure shall be Hoffman, Schaefer, Saginaw or equal; sizes as required.


11. Provide a 15 amp, 120 volt, service outlet circuit within the back-of-panel area. The circuit shall be provided with a 3 wire, 120 volt, 15 amp., duplex receptacle.

12. Furnish control panel with main circuit breaker, surge protective device, condensation heater, EMI filter, uninterruptible power supply, miscellaneous terminal blocks, analog splitters, relays and other specified control panel components to facilitate a complete and operable data logging system.

13. Furnish control panel with Cellular enabled data logger, programmed to provide remote monitoring of system data and alarms. Logger shall be furnished with remote-mountain cellular antenna. Antenna mounting location shall be dictated by results of on-site cellular survey. At locations where RTU panel is to be located indoors, the antenna will require exterior mounting at location coordinated with Owner. Data loggers shall be provided with SIM card suitable for Verizon cellular network.

D. Easton Basin Control Panels

1. Easton Basin Pump Station and Easton Diversion Structure Control Panels shall be modified as shown and specified to remove and replace existing PLC processor and related I/O modules.

2. Contractor shall retrofit existing panels to contain cellular gateway device, firewall, Ethernet network switch, operator display screen, equipment mounting shelf, uninterruptible power supply and other necessary components for a complete and operable control system, complying with Item No. 8 – Control Descriptions.

3. Easton Basin panels shall interface with new RTU panels, via Ethernet network connection. Telog unit shall be furnished with Ethernet interface.

E. Panel Wiring

1. Wire type and sizes: Conductor shall be flexible stranded copper machine tool wire, UL listed Type MTW, and shall be rated 600 volts. Wires for power circuits within panel shall be No. 14 minimum and sized for the load. Wires for instrument signal circuits and alarm input circuits within panel shall be No. 16 AWG. All shielded cables, shall be No. 18 AWG minimum.

2. Wire Marking: Wire numbers shall be marked using white numbered wire markers made from plastic-coated cloth, Brady Type B 500 or equal, or shall be heat shrink plastic.

3. For case grounding, panels shall be provided with a 1/4" x 1" copper ground bus complete with solderless connector for one No. 4 AWG bare stranded copper cable. The copper cable shall be provided by the Contractor and be connected to a system ground loop.
4. Power Supply Wiring
   a. Unless otherwise indicated, instruments, and alarm systems shall operate on 120 volt, 60 Hz circuits.
   b. Each potentiometer type instrument, electronic transducer, controller, or analyzer shall have an individual disconnect switch. Disconnect switches shall have metal or plastic tags indicating instrument tag numbers. Individual plug and cord set power supply connections may be used without switches when indicated in the material specification.

5. Alarm Wiring: The panel vendor shall install and wire alarms including light cabinets, audible signal units, test and acknowledge switches, and remote logic units as indicated. Interconnecting wiring to panel mounted initiating devices shall also be wired by the panel vendor. The wiring from external initiating devices shall be provided by the Contractor. Where plug and cord sets are provided for component interconnection, the panel vendor shall harness and support the cables in neat and orderly fashion. Where separate wire is required, panel vendor shall install No. 16 AWG with THWN or THHN insulation between all components.

6. Signal Wiring
   a. Signal wire shall be twisted pair or triads. Cable shall be constructed of No. 16 AWG copper signal wires with THWN or THHN insulation.
   b. Color code for instrument signal wiring shall be as follows:
      Positive (+) – Black
      Negative (-) – White

F. Labor and Workmanship: Panels shall be fabricated and wired by fully qualified workmen who are properly trained, experienced, and supervised.

G. Components
1. Enclosure Heater: A resistive heater shall be provided within the control enclosure. The heater shall be rated at 100 watts (minimum) and shall operate on 120 VAC. An adjustable thermostat shall be provided to turn heater on and off. The circuit shall be protected by a dedicated 15 amp. circuit breaker.

3. Line Terminal Block: A 1-pole line terminal block rated for 240 volt use shall be provided. Block shall be constructed of nylon and have insulating walls on all sides of the lug. Blocks must be UL recognized.

4. Surge Protection: A surge protection unit shall be installed at the point of connection for incoming power to the control panel. All units shall be rated at a minimum of 8 kA per mode surge rating, and 15 kA max discharge current. There shall be no leak current at double the rated voltage.

5. Control power fusing, sized as required by applicable codes.

6. Service receptacle: duplex; 15 amp., 125 volts; GFCI with indicator light/ Leviton Catalog No. 6598-I, or equal; install in Raco No. 670, or equal utility box.

7. DC power supplies: 12 volts (1.7A) and 24 volts (1.2A); Solar Silver Line Model SLS, Allen Bradley 1606-XLE, or equal; provide properly sized fuse on line side.
8. Reset push button: heavy duty, watertight/oil tight flush head, red button; Allen Bradley 800T-A2D2 (normally closed) or equal.

9. Terminals: barrier type, 9/16-inch spacing, nominal 2.5kV RMS rating. Tiered, double level, isolated terminal blocks may be acceptable for analog signals.

10. AC Power Isolator: provide power line noise suppressors to protect the electronic equipment. The units shall provide for common mode noise attenuation of up to 20 million to 1 and normal-mode noise attenuation typically 1,000 to 1 (60db).

11. Indicating lights: nominal 1" diameter LED type with opaque colored lens; press-to-test feature; heavy duty oil tight as required.

12. Control switches:
   a. Electronic circuits: Gold flashed contacts; initial resistance, 0.01 ohms; 0.5 amp. at 120 VAC, resistive; heavy duty, oil tight as required.
   b. Control circuits: Contact rating conforming to NEMA A-600 designation; heavy duty, oil tight as required.

13. Control/timer relays:
   a. All general-purpose control relays and time delays shall have dust covers and plug-in configuration, with screw terminal socket allowing exchange without disturbing the wiring.
   b. Coil: continuous operation at 120 VAC +10% unless shown otherwise.
   c. Contacts: 1 pole, double throw, minimum; 10 amp. (unless shown otherwise), 120VAC, resistive.

14. Control power circuit breaker: 15 amp., 120 VAC, single pole Cutler Hammer QC1015 or equal.

15. Uninterruptible Power Supply: 800VA, double conversion, true online type, furnish with (6) 5-15R output receptacles. Furnish with dedicated input receptacle. Unit shall be capable of mounting in bottom of enclosure, Eaton, Allen Bradley, or equal.

16. Cellular Gateway Device: Cellular enabled 4G LTE modem; 2-RJ45 LAN/WAN switchable ports; two cellular antenna (SMA) connectors; provide with accessory power adapter; provide with SIM card suitable for Verizon cellular network to be activated by Owner; Cradlepoint IBR600C-150MD

17. Network Firewall Device: Enterprise network security device with dual WAN uplinks; 100 Mbps max throughput; 4-RJ45 data ports, provide with accessory power adapter; provide with one year software and license subscription selected by Owner; Cisco Meraki MX64, or equal.

18. Ethernet Network Switch: Managed industrial 10/100 Base Ethernet network switches. Din-rail mountable with provisions for (8) copper network connections. Red Lion, N-TRON or equal.
   a. Easton Basin panels being retrofitted with new PLC racks shall contain unmanaged 4-port copper, din-rail mountable switches; Red Lion, N-TRON, or equal.
H. Mounting of Instruments
1. The panel vendor shall provide cutouts, and shall mount all instrument items indicated to be panel mounted.
2. The panel vendor shall also mount behind the panels other instrument accessory items as required for functionality as indicated.
3. Equipment mounted at the rear of panel shall be installed to allow for commissioning adjustments, servicing requirements, and cover removal. Network communication equipment that is not din-rail mountable to be installed on backplane mounting shelf.
4. Spare space shall be kept clear of wiring, etc., to give maximum space for future additions.

2.03 PROGRAMMABLE LOGIC CONTROLLER

A. General:
1. Furnish and install a programmable logic controller (PLC) including but not limited to power supply, microprocessor, input modules, output modules and other associated equipment as specified herein and as shown on drawings.
2. PLC and all components shall be designed, manufactured and tested in accordance with latest applicable UL standards.
3. The PLC, I/O modules, power supply modules, communication interface devices, and peripheral equipment shall be mounted inside the control panel. Incoming I/O wiring from the field to the control panel shall be terminated on terminal blocks in the lower portion of the enclosure. A nameplate shall be mounted on the outside of the door of the enclosure and be engraved with "CONTROL PANEL"
4. PLC to have following features:
   a. Modular construction, allowing I/O modules to be individually added or removed.
   b. Mounting equipment, racks, connecting cables, and other equipment included to provide functioning control system.
5. Input/output modules to have following features:
   a. Inputs and outputs modular, with 4, 8 or 16 circuits per module; status LEDs for each point, powered from field voltage, installed in each module.
   b. Field wiring to screw connectors attached to I/O mounting rack; removal and replacement of any I/O module without disturbing field wiring or any other I/O modules.

B. Qualifications:
1. Manufacturer: ISO 9000, 9001 or 9002 certified for equipment herein specified; produced similar electrical equipment for minimum period of 5 years.
2. When requested by Engineer, provide acceptable list of installations of similar equipment to demonstrate compliance with qualifications.

C. PLC
1. 128 MB (minimum) user memory.
4. Program functions include contacts, coils, timers, counters, math functions, proportional-integral-derivative (PID) control, shift registers, bit and word operations.

5. Entire programmable controller system capable of operating in ambient temperatures of +32°F to +140°F.; relative humidities of 5% to 95% non-condensing.

6. CPU capable of being networked to other programmable controllers or host computer.

7. Manufacturer, or equal: Allen-Bradley CompactLogix 1769-L3 processor with Studio 5000 Programming Software, unless shown otherwise on drawings.

D. Input/output Units
1. Analog Input/Output Characteristics: 4-20 milliamperes DC.
2. Digital Input/Output Characteristics: 120 volts AC, LED isolated from main processor. Individual I/O shall be electrically isolated, 2-wire discrete, dry contact relay equivalent.
3. Required Hardware:
   a. Input/Output Rack, Processor, Communications Interface Module (programmer port), rack and module power supplies.
   b. Each type of module shall have 20% spare capacity.
4. Manufacturer, or equal: Allen-Bradley.
5. Analog input module: Allen Bradley 1769-IF8, or equal.

E. Power Supply
1. Input Voltage: 120 volts, 60 Hz, 800 VA UPS.
2. Memory Backup: E² PROM memory chip set programmed with final operational software.
3. Manufacturer, or equal: Allen-Bradley.

F. Operator Interface:
1. Operator interface to allow online data monitoring and manipulation of process setpoints.
2. Mount operator interface terminal on door of existing Control Panel(s); operator interface to be accessible without opening door of motor control center section. Contractor shall modify existing panel cutout to accommodate new display.
3. Operator interface terminal:
   a. Panel mount color display monitor with touchscreen operator input.
   b. Interface to PLC via ethernet connection.
   c. 256K minimum application memory.
   d. NEMA 12 case.
   e. 120 VAC power supply.
f. Allen-Bradley PanelView Plus 7, 7” display size at Easton Basin locations.

g. As a minimum the following graphical screens shall be provided:
   1) Station overview.
   2) Alarms; alarm screen to pop-up automatically when alarm condition occurs.
   3) Pumps
   4) Gate
   5) Level Instrumentation
   6) Historical Level Trend Data.
   7) Other graphics screens as defined by Owner and/or Engineer.
   8) A hard copy of the proposed graphics screens shall be included in the shop drawing submittal.

2.04 TELEMETRY SYSTEM

A. Furnish and install a complete telemetry system including but not limited to telogger, signal splitter, cellular antenna, interconnecting cables, connectors and conduit for communication from control panels to WRA Enterprise Control System.

B. Signal Splitter
   1. 4-20 mADC Loop Splitter / Isolator
   2. High Accuracy / 0.05%
   3. Small Size (12.5 mm) / High Packing Density
   4. DIN Rail Mount
   5. Loop Splitter ONE 4 to 20 mADC input split into two fully isolated 4 to 20 ma outputs.
   6. The isolator that provides TWO isolated 4 to 20 ma outputs from a single 4 to 20 ma input. The input and the output loops must each have power supplies. The three power supplies must of course be isolated from each other to maintain isolation. The isolator is housed inside a plastic enclosure, suitable for DIN Rail mounting. Screw terminals provided for wire connections.

C. Telogger
   1. RTU Inputs - The station shall include RTU (Recording Telemetry Unit) or Telogger; provide models with cellular modem and other options to support communication with existing Enterprise software owned by the Des Moines WRA.
   2. Manufacturer and Model Number: Telog Instruments R-3330.
   3. RTU shall interface to digital and analog signals sourced from existing Pump Station Control Panel(s). RTU shall be configurable to automatically collect all device-measured parameters (e.g. level, equipment status, alarms, utility power).
   4. Memory - Data collected by the RTU shall be stored within the RTU with time stamps, and then forwarded to the DSM WRA host computer at a user defined schedule (e.g. every 15 minutes, daily, etc.). The RTU shall have sufficient memory to store > 4 months of data when collecting 4 parameters required.
5. Communication Options – The RTU shall support the following communication methods:
   a. Packet Switched Cellular (1xRTT and GPRS using TCP/IP protocol)
   b. Circuit Switched Cellular (CDMA and GSM digital)
   c. Narrow Band and Spread Spectrum Radio (licensed and unlicensed)
   d. Land-line Telephone
   e. Satellite
   f. Ethernet Communication module
   g. Local RS-232

6. Communication Methodology – Communications between the Station RTU and Host Computer Application shall be automatic and error free. Error free operation shall be achieved by transferring data in short packets (500 byte maximum) with embedded CRC codes (16 bit minimum) with automatic retransmission of packets with detected errors. Transmission errors shall be recorded in error logs in both the RTU and the Host Computer.

7. The DSM WRA will support call initiation by either the RTU and/or the Host Computer. To minimize energy consumption in the RTU when battery powered, the RTU shall be configurable to remove power from the communications modem between calls. When this mode is selected, all communications will be initiated by the RTU.

8. The RTU shall support three call initiation modes:
   a. Normal calls – Scheduled calls to transmit all collected data not previously is transferred to the host computer. During these calls, the RTU clock shall be synchronized to the host computer, the RTU log files shall up uploaded to the host computer and any new RTU configuration or program changes shall be downloaded to the RTU.
   b. Instant Message calls- The RTU shall support a means to forward a single interval of data within a single data packet to the host computer at a user defined schedule. Total data transmitted during each IM call including overhead shall not exceed 700 bytes to limit monthly billing data rates to 2 Megabyte plans when calling at 15-minute intervals.
   c. Alarm Calls – The RTU shall generate alarm calls to the Host Computer when any user-configured alarm is detected by the RTU.

9. Alarms – The RTU shall provide user configurable alarms for:
   a. Recorded channels (hi and low threshold values)
   b. Computed channels (hi and low threshold values)
   c. Battery status (local RTU battery & external battery if applicable)
   d. Event Input (sampler, pump run time exceedance etc.)
   e. Memory nearly full (applicable only when using alarm recording mode)
   f. Tamper detect (e.g. external door switch detector)
   g. RTU operation error detect (e.g. power up reset; memory error, etc.)
   h. AC Power Fail detect
10. Alarms shall be forwarded to the Host Computer immediately upon detection and after a user configurable dwell time period. Alarms will be identified by Site and Recorder ID, measurement, value and time stamp. The RTU shall be configured to repeat the alarm call at a user specified interval if the alarm persists. The RTU shall call to announce an alarm clear condition when the condition returns to normal.

D. RTU equipment shall be furnished with cellular SIM card compatible with Verizon cellular network. SIM cards shall be registered to Des Moines WRA. Furnish unit with LTE cellular antenna suitable for exterior mounting; PCTEL Maxrad model: BMLPVDB700/2500 black, no substitution.

E. Equipment supplied must meet requirements of Des Moines WRA and must be suitable to communicate with Des Moines WRA Enterprise software.

F. Coordinate hardware, software and programming requirements with Des Moines WRA; include all costs associated with procurement, installation, debugging, startup and training of Telemetry system.

2.06 SPARE PARTS

A. Provide one (1) spare power supply for each Control Panel.

B. Provide one (1) spare memory cartridge containing control program.

C. Provide three (3) spare relays of every size/type used in the Control Panels.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Preparation for Shipment and Shipping
   1. Panels shall be crated for shipment using a heavy framework and skids. Panel sections shall be cushioned to protect the finish of the instruments and panel during shipment.
   2. Control panel testing and inspection shall be performed prior to shipping.
   3. Control panels shall be installed in accordance with Item No. 6 - Process Control and Instrumentation System.
   4. Easton Basin panels shall be modified in the field to contain the hardware, features and functionality shown and specified.

B. Install RTU Control Panel(s) where shown on plans. Confirm final installation location with Owner and Engineer.
3.02 SIGNAL AND CONTROL WIRING

A. Wiring Installation: Wires shall be run in plastic wireways except (1) field wiring, (2) wiring between mating blocks in adjacent sections, (3) wiring from components on a swing out panel to components on a part of the fixed structure, and (4) wiring to panel mounted components. Wiring run from components on a swing out panel to other components or a fixed panel shall be made up in tied bundles. These bundles shall be tied with nylon wire ties and shall be secured to panels at both sides of the "hinge loop" so that conductors are not strained at the terminals.

B. Wiring run to control devices on the panel front shall be tied together at short intervals with nylon wire ties and be secured to the inside face of the panel using adhesive mounts.

C. Wiring to rear terminals on panel-mount instruments shall be in plastic wireways secured to horizontal brackets above or below the instruments in about the same plane as the rear of the instruments.

D. Shop Drawings shall show conformance to the above wiring installation requirements.

E. Wire Marking: Each signal, control, alarm, and indicating circuit conductor connected to a given electrical point shall be designated by a single unique number which shall be shown on Shop Drawings. These numbers shall be marked on conductors at every terminal.

3.03 PROGRAMMING SERVICES

A. Program programmable logic controllers (PLCs) and operator interface terminal as required by functional descriptions.

B. Provide additional programming during start-up, training, and call-back periods as specified.

3.04 INSPECTION AND APPROVAL

A. Panel fabricator shall conduct the following tests prior to shipment.
   1. Alarm circuits rung out to determine their operability.
   2. Electrical circuits checked for continuity and where applicable, operability.
   3. Any other test required to place the panel in an operating condition.
B. It shall be the responsibility of the Contractor to furnish all necessary testing devices and sufficient manpower to perform the tests required by the engineer.

C. Field Testing: The control panel shall be tested again for functional operation in the field after the connection of external conductors and prior to equipment startup.

3.05 EXHIBITS

A. I/U Point List.
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<td><strong>Part 7</strong></td>
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<td><strong>Exhibit A - I/O List</strong></td>
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ACTIVITY ID 08-2022-001
| Part 7  
| Exhibit A - I/O List |

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ACTIVITY ID 08-2022-001
8 - CONTROL DESCRIPTIONS

PART 1 - GENERAL

1.01 DESCRIPTION

A. This section describes how each portion of control system shall operate. Controls integrator shall replicate existing control logic within the upgraded PLC controller(s) at the Easton Basin locations noted. Integrator shall have access to the existing SLC 503 processor ladder logic for reference.

B. The functional descriptions, in conjunction with the drawings and technical requirements for products as described in Item No. 7 - Control Panel, define the minimum requirements for installation.

C. All products used to meet the functional descriptions shall be those specified in Item No. 7 - Control Panel.

PART 2 - FUNCTIONAL DESCRIPTIONS

2.01 EASTON BASIN PUMP STATION

A. Continuously monitor water level in wet well with existing ultrasonic level sensor/controller and four float switches.
   1. Use level sensor/controller as primary control point to start and stop pumps.
   2. One float switch shall detect high water level in wet well.
   3. One float switch shall function to start wet well Drain Pump.
   4. One float switch shall function to stop wet well Drain Pump.
   5. One float switch to detect low water level in wet well.

B. Storm Pumps, Pump No. 1 and 2
   1. General - There are two identical pumps.
   2. Process Set Points shall match those of existing setup.
   3. Provide for manual or automatic control of the pumps from Pump Station Control Panel (CP-1).
   4. Provide for local controls from three position (Hand-Off-Auto) selector switch for each pump on the CP-1.
   5. When in "Auto" mode, the pumps are controlled by the PLC. The PLC will start, stop based on water level in the wet well as defined below:
      a. Wet well elevation to be maintained at preset level.
      b. Start lead pump when water in wet well reaches Operator adjustable level.
      c. Start lag pump when water in wet well continues to rise to Operator adjustable level.
      d. Stop a I pumps when water in wet well reaches pump off level.
e. Provide pump alternation following the first on first off method. Change the
designation of the each pump after the last pump stops in the following manner.
The lag becomes lead and lead becomes lag.
f. When the lead pump starts, start an Operator adjustable timer initially set to 24
   hours. The timer will continue to run until the lead pump stops or it times out.
g. If the lead pump does not stop before the timer times out, the PLC shall
   automatically change the designation of the pumps as indicated above.
6. When in "Hand" mode, the pumps shall operate continuously.
7. Provide indicating lights on the CP-1 to indicate off and running conditions of each
   pump.
8. Upon detection of motor over temp, as detected by thermal sensors in the stator
   winding of each pump:
   a. Automatically shut down the pump.
   b. Indicate by existing alarm light on the CP-1.
   c. Provide for manual reset.
   d. Provide alarm output to the PLC.
   e. PLC to provide alarm output for monitoring by telog system.
9. Upon detection of seal failure or moisture in stator housing or cable entry chamber:
   a. Indicate by an indicating light on the CP-1.
   b. Provide alarm output to the PLC and telog system.

C. Drain Pump
1. Process Set Points shall match those of existing setup. Drain pump shall provide
   primary pumping during non-flood events.
2. Provide for manual or automatic control of the pump from Pump Station Control
   Panel (CP-1).
3. Provide for manual or automatic control of the pump from Pump Station Control
   Panel (CP-1).
4. When in "Auto" mode, the pump is controlled by the PLC. The PLC will start, stop
   based on water level in the wet well as defined below:
   a. Start led pump when water in wet well reaches Operator adjustable level.
   b. Stop pump when water in wet well reaches pump off level.
5. When in "Hand" mode, the pump shall operate continuously.
6. Provide indicating lights on the CP-1 to indicate off and running conditions.
7. Upon detection of motor over temp, as detected by thermal sensors in the stator
   winding of each pump:
   a. Automatically shut down the pump.
   b. Indicate by existing alarm light on the CP-1.
   c. Provide for manual reset.
   d. Provide alarm output to the PLC.
   e. PLC to provide alarm output for monitoring by telog system.
8. Upon detection of seal failure or moisture in stator housing or cable entry chamber:
   a. Indicate by an indicating light on the CP-1.
   b. Provide alarm output to the PLC and telog system.
D. Pump Station Control Panel shall accept remote signal from WRA Plant DCS to interlock pump operation when high water levels and flow are detected at Easton Monitoring Station. When water levels have returned to normal and interlock signal is removed the station shall return to normal operation.

2.02 EASTON DIVERSION STRUCTURE

A. Controls Integrator shall replicate existing sluice gate control logic from existing PLC control system. Gate shall open/close based on remote signal from WRA Plant DCS.
   1. Provide for manual or automatic control of the gate from existing Control Panel.
   2. Provide for local controls from three position (Hand-Off-Auto) selector switch for gate.
   3. When in "Auto" mode, the gate is controlled by the PLC. The PLC will open, close the gate based on water level and flow data from Easton Monitoring Station.
   4. When in "Hand" mode, the gate shall operate open/closed when commanded by Operator.
   5. Provide indicating lights on the control panel to indicate Open and Closed conditions.

B. Control system shall continuously monitor sluice gate position.
   1. Transmit 4 to 20 ma. DC analog signal from existing gate to control panel.
   2. Indicate gate position on control panel display screen.
   3. Transmit 4-20 ma signal to alarm/telemetry system.

C. Control system shall continuously monitor sluice gate motor temperature and torque conditions.
   1. Upon detection of motor over temp, as detected by thermal sensors in the stator winding of the motor:
      a. Automatically shut down the gate motor.
      b. Indicate by existing alarm light on the control panel.
      c. Provide for manual reset.
      d. Provide alarm output to the PLC.
      e. PLC to provide alarm output for monitoring by telog system.
   2. Upon detection of gate torque alarm:
      a. Automatically shut down the gate motor.
      b. Indicate by existing alarm light on the control panel.
      c. Provide for manual reset.
      d. Provide alarm output to the PLC.
      e. PLC to provide alarm output for monitoring by telog system.

PART 3 - EXECUTION

Not Applicable.
This project will be constructed in accordance with the SUDAS Standard Specifications, 2022 Edition, which were adopted by the City of Des Moines on March 7, 2022, under Roll Call No. 22-0308, as amended by these City of Des Moines General Supplemental Specifications.

The SUDAS Standard Specifications, 2022 Edition, may be viewed at the Iowa SUDAS website at: https://iowasudas.org/manuals/specifications-manual/, or can be purchased online from the Iowa SUDAS website at: https://iowasudas.org/order-the-manuals/.

Said SUDAS Standard Specifications are hereby amended as follows:

SECTION 1010 – DEFINITIONS

1010, 1.03 DEFINITIONS AND TERMS. Add the following new definition:

PRIVATE CONSTRUCTION CONTRACT. A contract awarded by a private agency or individual for construction of a publicly owned or privately-owned improvement, which by agreement of the parties is subject to these specifications.

SECTION 1020 – PROPOSAL REQUIREMENTS AND CONDITIONS

1020, 1.01 QUALIFICATION OF THE BIDDERS: Add the following new E.

*E. The City of Des Moines may disqualify a Contractor from bidding on future work or from participating as a subcontractor for a period of up to 3 years in accordance with Section 94-198 of the Municipal Code of the City of Des Moines.

1020, 1.03 QUANTITIES AND UNIT PRICES: Delete B. and replace with the following new B.

B. When unit prices are requested in the proposal form, the quantities indicated on the proposal form are approximate only, and do not constitute a warranty or guarantee by the Jurisdiction as to the actual quantities involved in the work. Such quantities are to be used for the purpose of comparison of bids and determining the amount of bid security, contract, and performance, payment, and maintenance bond. In the event of discrepancies between unit prices and unit price extensions listed in a bidder’s proposal, unit prices shall govern and unit price extensions shall be corrected, as necessary, for agreement with unit prices, except in the case of an obvious, serious, clerical error where the Engineer is able to determine the bidder’s intent from the proposal; in which case, the Jurisdiction may waive irregularities that are in best interest of the Jurisdiction, as long as the integrity of the bid process can be maintained. The Jurisdiction expressly reserves the right to increase or decrease the quantities during construction as outlined in Section 1040, 1.06 - Increase or Decrease of Work, and to make reasonable changes in design, provided such changes do not materially change the intent of the contract. The amount of work to be paid for shall be based upon the actual quantities performed.
This highlighted language and Section 94-198 of the Municipal Code of the City of Des Moines are not the current law of the State of Iowa and not applicable to the City’s current bidding process.

1020, 1.09 PREPARATION OF THE PROPOSAL: Delete D. and replace with the following D:

D. When unit prices are requested, they shall be submitted on each and every item of work included for which bids are requested. The format for unit prices will be in dollars and whole cents only. In the case of discrepancy, the unit price shall govern; except in the case of an obvious, serious, clerical error where the Engineer is able to determine the bidder’s intent from the proposal; in which case, the Jurisdiction may waive irregularities that are in best interest of the Jurisdiction, as long as the integrity of the bid process can be maintained.

1020, 1.15 LIMITATION ON WITHDRAWAL OF PROPOSALS AFTER OPENING OF PROPOSALS: Add the following new C:

C. After bids are opened, if the low bidder claims that it has made a serious error in the preparation of its bid, and can support such a claim with evidence satisfactory to the Jurisdiction, said bidder shall be allowed to withdraw its bid and its bid security shall be returned; provided however, as a condition for return of its bid security, said bidder shall be required to agree that it will not be allowed to again bid on the project, either as a prime bidder or as a subcontractor, if the project, or a substantial portion of the project, is rebid within six months of the first bid opening. Under no circumstances should said bidder be permitted to alter or adjust its bid, as this would undermine the entire system of competitive bidding and be an open invitation to abuse.

SECTION 1040 – SCOPE OF WORK

1040, 1.05 PLANS: Delete the 2nd paragraph and replace with the following:

Electronic support files, will not be provided prior to letting and may be provided to the low bidder and are for information only. Should there be a discrepancy between an electronic support file and a contract document, the contract documents shall govern. No guarantee is made that the data systems used by the Engineer will be directly compatible with the systems the Contractor uses.

1040, 1.07 CHANGE ORDERS, B. Written Orders: Add the following to the end of the section:

Formal approval by the Jurisdiction shall be defined as follows:

The authority of the Des Moines City Manager and the Engineer to approve change orders shall be limited to those change orders which will cost $50,000 or less. Change orders for work to cost more than $50,000 shall be approved by the City Council prior to the payment of the work provided for under the change order.

This highlighted language is not the current law of the State of Iowa and not applicable to the City’s current bidding process.

1040, 1.09 CHANGED SITE CONDITIONS, A. Latent or Subsurface Conditions: Delete 1. and 2. in their entirety and replace with the following 1. and 2.; and add the following new 3.

1. If the Contractor encounters latent or subsurface conditions differing materially from those indicated in the contract documents which the Contractor could not have discovered by a reasonable site investigation and examination of the type customarily undertaken by prudent and competent contractors, and if these changed conditions are considered by the Contractor as a basis for compensation in addition to the contract price, the Contractor shall within three working days after discovery thereof notify the Engineer of its claim by written notice as sent
set forth herein. Before disturbing the site at which the latent or subsurface condition is alleged to exist, the Contractor shall give the Engineer the opportunity to inspect the same.

a. For claims greater than $50,000 the Contractor shall notify the Engineer by written notice either (i) personally delivered, (ii) sent by certified mail, return receipt requested, or (iii) delivered by a nationally recognized prepaid overnight courier service (receipt requested), to the address below:

City of Des Moines
Engineering Department
400 Robert D. Ray Drive
Des Moines, IA 50309-1891
Attention: Steve Naber, P.E., City Engineer

Under no circumstance will an email, text message, verbal communication or any other informal communication, be considered acceptable or satisfactory written notice required by this section. The written notice shall:

1) Expressly state that it is a request for a contract change under Section 1040, 1.09;
2) Expressly identify the latent or subsurface conditions that the Contractor alleges differ materially from those indicated in the contract documents which the Contractor could not have discovered by a reasonable site investigation and examination of the type customarily undertaken by prudent and competent contractors;
3) Expressly state the reason the Contractor believes extra compensation is due;
4) Identify work that Contractor alleges will be impacted.

b. For claims less than $50,000 the Contractor shall notify the Project Engineer by written notice sent as set forth above or sent by email providing the same detail as identified in a.1) through 4) above. Under no circumstances will a text message, verbal communication or any other informal communication be considered acceptable or satisfactory written notice required by this section.

2. After inspection by the Engineer, the Jurisdiction may, in its discretion, authorize the Contractor to proceed with or abandon the work. The Contractor shall resume construction operations pending a decision regarding its claim by the Jurisdiction. Failure of the Contractor to give written notice within three working days of discovering the conditions and to give the Engineer full opportunity to inspect the condition before disturbing the site shall be deemed a waiver by the Contractor of all claims for extra compensation arising out of the alleged condition.

3. Latent or subsurface conditions that do not materially differ from those shown on the plans shall not form the basis for additional compensation. No additional compensation or extension of time shall be provided for conditions that do not materially differ, regardless of the nature of the condition encountered.

1040, 1.10 DISPUTED CLAIMS FOR EXTRA COMPENSATION: Delete 1.10 in its entirety and replace with the following:

A. Basis of Claim for Extra Compensation:

1. In any case where the Contractor believes extra compensation is due for work or material beyond the scope of the Work under the contract and not ordered by the Engineer as Extra Work as defined in Section 1010, 1.03, the Contractor shall provide written notice to the Engineer, as set forth herein, of its intention to make claim for such extra compensation within thirty (30) days of discovering the circumstances regarding the claim and before beginning the work on which the claim is based (hereinafter referred to as a “Claim”).
a. For claims greater than $50,000 the Contractor shall notify the Engineer by written notice either (i) personally delivered, (ii) sent by certified mail, return receipt requested, or (iii) delivered by a nationally recognized prepaid overnight courier service (receipt requested) to the address below:

City of Des Moines  
Engineering Department  
400 Robert D. Ray Drive  
Des Moines, IA 50309-1891  
Attention: Steve Naber, P.E., City Engineer

Under no circumstance will an email, text message, verbal communication or any other informal communication, be considered acceptable or satisfactory written notice required by this section. The written notice shall:

1) Expressly state that it is a request for a contract change under Section 1040, .10;  
2) Expressly state the reason the Contractor believes extra compensation is due;  
3) Identify the underlying work or material that Contractor claims is beyond the scope of the Work under the contract and not ordered by the Engineer as Extra Work as defined in Section 1010, 1.03;  
4) Identify any work that will be impacted.

b. For claims less than $50,000 the Contractor shall notify the Project Engineer by written notice sent as set forth above or sent by email providing the same detail as identified in a.1) through 4) above. Under no circumstances will a text message, verbal communication or any other informal communication be considered acceptable or satisfactory written notice required by this section.

The Contractor shall not proceed with that work until the Contractor and the Jurisdiction have executed a change order with respect to the Claim. The Contractor shall have no right to submit a Claim for any matter which is exclusively reserved to authority of the Engineer under the Contract Documents.

2. The Jurisdiction shall not be responsible for damages attributable to the performance, nonperformance, or delay, of any other contractor, governmental agency, utility agency, firm, corporation, or individual authorized to do work on the project, except if such damages result from negligence on the part of the Jurisdiction, its Engineer, or any of its officers or employees.

3. For any Claim, if such written notification is not given, or if after such written notification is given the Engineer is not allowed facilities for keeping strict account of actual costs as defined for force-account construction, the Contractor thereby agrees to waive the Claim for extra compensation for such work. Such written notice by the Contractor, and the fact the Engineer has kept account of the cost as aforesaid, shall not be construed as establishing the validity of the Claim.

4. The Claim, when filed, shall be in writing and in sufficient detail to permit auditing and an evaluation by the Jurisdiction. The Claim shall be supported by such documentary evidence as the Contractor has available and shall be verified by affidavit of the Contractor or other person having knowledge of the facts.

B. Presentation and Consideration of Claim: If the Contractor wishes an opportunity to present its Claim in person, the Claim shall be accompanied by a written request to do so. Where the Contractor asks an opportunity to present its Claim in person, the Jurisdiction, within thirty (30) calendar days of the filing of the Claim, shall fix a time and place for a meeting between the Contractor and the Jurisdiction or its designated representatives or representative. The Jurisdiction shall, within a reasonable time after the filing of the Claim or the meeting above
referred to, whichever is later, rule upon the validity of the Claim and notify the Contractor, in writing, of its ruling together with the reasons therefore. In case the Claim is found to be just, in whole or in part, it shall be allowed and paid to the extent so found.

C. Request for Claim Review: In the event a Contractor's Claim as outlined in the above procedure in Sections 1040, 1.10(A) and (B) has been disallowed, in whole or in part, the Contractor may, within thirty (30) calendar days from the date the ruling of the Jurisdiction is mailed, make a written request to the Jurisdiction that its Claim or Claims be submitted to a board of review. The written request shall be either (i) personally delivered, (ii) sent by certified mail, return receipt requested, or (iii) delivered by a nationally recognized prepaid overnight courier service (receipt requested) addressed as follows:

City of Des Moines
Engineering Department
400 Robert D. Ray Drive
Des Moines, IA 50309-1891
Attention: City Engineer

The Jurisdiction shall decide if the matter is subject to further review and shall, within thirty (30) calendar days of the receipt of the request for review, grant or deny the request for review. The Jurisdiction's decision shall be final. In the event the Contractor fails to make a timely written demand for review of its Claim as provided by this Section 1040, 1.10(C), the decision of the Jurisdiction shall be deemed to be final and the Contractor shall have no right to pursue arbitration or litigation of its Claim.

D. Board of Review:

1. The Board shall have jurisdiction to pass upon questions involving compensation to the Contractor for work actually performed or materials furnished and upon claims for extra compensation that have not been allowed by the Jurisdiction. The Board's jurisdiction shall not extend to matters exclusively reserved to the Engineer, to a determination of quality of workmanship or materials furnished, or to an interpretation of the intent of the Plans and Specifications except as to matters of compensation. Jurisdiction of the Board shall not extend to setting aside or modifying the terms or requirements of the contract.

2. Following the timely written demand for review of the Claim and the decision of the Jurisdiction to grant the request, a board of review shall be appointed to review the Claim. The board of review shall consist of three (3) members as follows: the Engineer, or designated representative; and two persons to be appointed by the Engineer (hereinafter the "Board").

3. The Board shall set a date for the Contractor to present its Claim for review within sixty (60) days of the date the Jurisdiction issued its decision granting the Contractor's request for review. The presentation before the Board shall not be in accordance with the Iowa rules of civil procedure and the Contractor shall not have the right to conduct discovery or compel the testimony of witnesses as part of the presentation. The Contractor shall submit three (3) copies of a written Claim summary and all documents it considers to be relevant to its Claim at least fourteen (14) days prior to the date set for the presentation before the Board. The presentation before the Board is intended to be an informal process to allow the Contractor to further explain its Claim and why it believes it is entitled to additional compensation. The Board reserves the right to impose such rules as it deems reasonably necessary to allow for a fair and efficient presentation.

4. Following the presentation before the Board, the Board shall render a written decision regarding the Claim within twenty (20) days of the presentation. In the event the Board renders a decision in favor of the Contractor for some or all of the Claim, the Contractor and the Jurisdiction shall promptly proceed in good faith to prepare a change order consistent with the decision of the Board. If the Board denies the Claim, in part or in full, the Contractor's
sole and exclusive remedy is to demand final resolution of the Claim that has been denied subject to the procedure provided below.

E. Final Resolution by Binding Arbitration or Litigation: For any Claim denied by the Board, the Jurisdiction shall have the sole and exclusive right to determine whether final resolution of the Claim shall be through Binding Arbitration or litigation. The Contractor shall not have the right to pursue final resolution of any Claim that the Contractor did not submit to the Board. The Contractor must make a written demand for final resolution of the Claim upon the Jurisdiction within thirty (30) days of the date when the Board rendered its decision or it will be deemed to have waived this right and the decision of the Board will be final. The written demand shall be either (i) personally delivered, (ii) sent by certified mail, return receipt requested, or (iii) delivered by a nationally recognized prepaid overnight courier service (receipt requested) addressed as follows:

City of Des Moines
Engineering Department
400 Robert D. Ray Drive
Des Moines, IA 50309-1891
Attention: Steve Naber, P.E., City Engineer

The Jurisdiction shall notify the Contractor within thirty (30) days of the date of receiving the Contractor’s written demand for final resolution of the Claim, whether the Jurisdiction will elect to use binding arbitration or litigation to reach a final resolution of the Claim. The decision on whether to pursue binding arbitration or litigation, shall be the sole and exclusive decision of the Jurisdiction. The decision of the Jurisdiction on whether to pursue binding arbitration or litigation is final.

1. Arbitration.

(a) If the Jurisdiction elects to use binding arbitration for final resolution of the Claim, the sole and exclusive remedy for final resolution of the Claim shall be binding arbitration (the “Arbitration”). The Arbitration shall be submitted to a single arbitrator as is mutually agreed upon by the Contractor and Jurisdiction. If the Contractor and Jurisdiction cannot agree upon a single arbitrator within twenty-one (21) days of the date of the Jurisdiction’s notification to the Contractor of the Jurisdiction’s decision to pursue binding arbitration, the Arbitration shall be submitted to a three (3) member panel appointed as follows: the Contractor shall appoint one arbitrator; the Jurisdiction shall appoint one arbitrator; and the third arbitrator shall be chosen by the first two appointed arbitrators (for the sake of convenience, the arbitrator, or arbitrators as the case may be, shall be referred to hereinafter as the “Arbitrator”). The parties agree to work toward appointment of a three (3) member Arbitration panel within twenty-one (21) days after not being able to agree on a single arbitrator. The Arbitration shall be conducted in general accord with the Construction Industry Arbitration Rules of the American Arbitration Association then in effect. The parties reserve the right to alter and amend the rules for the Arbitration as they may mutually agree in writing.

(b) The Arbitrator shall have jurisdiction to pass upon questions involving compensation to the Contractor for work actually performed or materials furnished and upon claims for extra compensation that have not been allowed by the Jurisdiction. The Arbitrator’s jurisdiction shall not extend to matters exclusively reserved to the Engineer, to a determination of quality of workmanship or materials furnished, or to an interpretation of the intent of the Plans and Specifications, except as to matters of compensation. Jurisdiction of the Arbitrator shall not extend to setting aside or modifying the terms or requirements of the contract.
(c) Subject to agreement of the parties and the Arbitrator, the parties shall work in good faith to schedule the Arbitration and allow for the decision of the Arbitrator within two hundred forty (240) days after appointment of the Arbitrator.

(d) The Arbitrator shall render a written decision within twenty (20) days after the Claim has been fully submitted. For Arbitrations before more than one arbitrator, the decision of a majority of the panel shall govern. The Arbitrator’s decision shall provide a basis for the findings and legal conclusions and shall determine how the cost of the proceedings shall be borne by the parties.

(e) The decision of the Arbitrator shall be binding and final. There shall be no further appeal or judicial review, except under the limited circumstances as allowed by Iowa law.

2. Litigation.

(a) If the Jurisdiction elects not to use arbitration as the means to reach final resolution of the claim, then the sole and exclusive remedy for final resolution of the Claim shall be litigation which must be brought in Iowa District Court in and for the County where the Jurisdiction is located or in the United Stated District Court in and for the District where the Jurisdiction is located.

(b) To the fullest extent permitted by law, Contractor and Jurisdiction hereto waive any right each may have to a trial by jury in respect of litigation directly or indirectly arising out of or in connection with this Agreement.

SECTION 1050 – CONTROL OF WORK

1050, 1.10 PROTECTION OF LINE AND GRADE STAKES: Add the following new D.

D. The Jurisdiction shall provide all construction survey staking on projects funded by the Jurisdiction unless otherwise indicated on the plans or in the Contract Documents. On Private Construction Contracts, the Owner, in accordance with the Private Construction Contract, shall hire a Licensed Surveyor for all survey work.

SECTION 1060 – CONTROL OF MATERIALS

1060, 1.03 SAMPLES AND TESTING: Add the following new D.

D. All on-site inspection and testing, as well as testing of materials, will be provided by the Jurisdiction unless otherwise indicated on the plans or by special provisions.

SECTION 1070 – LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

1070, 1.03 PERMITS AND LICENSES: Delete and replace with the following:

The Contractor shall procure and pay for all necessary permits and licenses for the construction of the work and for temporary excavations, obstructions, enclosures, and street openings arising from the construction and completion of the work described in the Contract Documents. The Contractor shall be responsible for all violations of the law for any cause in connection with the construction of the work or caused by the obstruction of roads, streets, highways or sidewalks, and shall give all requisite notices to the Jurisdiction or other public authorities in connection therewith.
6. The City of Des Moines, Engineering Department, Master Construction Safety Packet is available in the Forms and Documents section at the Engineering page on the City of Des Moines website at: https://www.dsm.city/document_center/Engineering%20and%20Traffic%20Forms%20and%20Documents /ENG-Publications/MasterConstructionSafetyPacket.pdf?pdf=Master%20Construction%20Safety%20Packet&t=1580921434169 and is also available upon request from the Engineering Department. The Engineering Department will make available a copy of the City of Des Moines Master Construction Safety Plan to the Contractor when the contract is awarded. Said Safety Plan is for the Contractor’s information only and it is the Contractor’s sole responsibility to provide, or make available, this safety information to all its Subcontractors.

1070, 1.12, CONSENT TO JURISDICTION OF IOWA DISTRICT COURT OR FEDERAL DISTRICT COURT: Delete 1.12 in its entirety and replace with the following new 1.12:

1070, 1.12 DISPUTE RESOLUTION AND CONSENT TO JURISDICTION OF IOWA DISTRICT COURT OR FEDERAL DISTRICT COURT IN IOWA

A. The Contractor agrees any claims, disputes, causes of action that accrue to it, or which by subrogation or assignment accrue to its sureties or insurers, arising out of or connected with this contract, and that the Jurisdiction has determined in writing is not subject to Section 1040, 1.10, shall be resolved by arbitration or litigation as elected by the Jurisdiction. As to any such causes of action, Contractor shall provide written notice to Jurisdiction requesting that Jurisdiction make its election as to whether the dispute shall be settled by arbitration or litigation. The written notice shall be either (i) personally delivered, (ii) sent by certified mail, return receipt requested, or (iii) delivered by a nationally recognized prepaid overnight courier service (receipt requested) addressed as follows:

City of Des Moines
Engineering Department
400 Robert D. Ray Drive
Des Moines, IA 50309-1891
Attention: Steve Naber, P.E., City Engineer

Jurisdiction shall notify Contractor in writing as to its election within thirty (30) days of receipt of Contractor’s written notice requesting a determination by Jurisdiction.

1. Arbitration

(a) If the Jurisdiction elects to use binding arbitration for final resolution, the sole and exclusive remedy for final resolution of the dispute shall be binding arbitration (the “Arbitration”). The Arbitration shall be submitted to a single arbitrator as is mutually agreed upon by the Contractor and Jurisdiction. If the Contractor and Jurisdiction cannot agree upon a single arbitrator within twenty-one (21) days of the date of the Jurisdiction’s notification to the Contractor of the Jurisdiction’s decision to pursue binding arbitration, the Arbitration shall be submitted to a three (3) member panel appointed as follows: the Contractor shall appoint one arbitrator; the Jurisdiction shall appoint one arbitrator; and the third arbitrator shall be chosen by the first two appointed arbitrators (for the sake of convenience, the arbitrator, or arbitrators as the case may be, shall be referred to hereinafter as the “Arbitrator”). The parties agree to work toward appointment of a three (3) member Arbitration panel within twenty-one (21) days after not being able to agree on a single arbitrator. The Arbitration shall be conducted in general accord with the Construction Industry Arbitration Rules of the American Arbitration Association then in effect. The parties reserve the right to alter and amend the rules for the Arbitration as they may mutually agree in writing.
(b) Jurisdiction of the Arbitrator shall not extend to setting aside or modifying the terms of requirements of the contract.

(c) Subject to agreement of the parties and the Arbitrator, the parties shall work in good faith to schedule the Arbitration and allow for the decision of the Arbitrator within two hundred forty (240) days after appointment of the Arbitrator.

(d) The Arbitrator shall render a written decision within twenty (20) days after the matter has been fully submitted. For Arbitrations before more than one arbitrator, the decision of a majority of the panel shall govern. The Arbitrator’s decision shall provide a basis for the findings and legal conclusions and shall determine how the cost of the proceedings shall be borne by the parties.

(e) The decision of the Arbitrator shall be binding and final. There shall be no further appeal or judicial review, except under the limited circumstances as allowed by Iowa law.

2. Litigation.

(a) If the Jurisdiction elects not to use arbitration as the means to reach final resolution of the claim or fails to notify Contractor in writing within thirty (30) days of its election, then the sole and exclusive remedy for final resolution of the Claim shall be litigation which must be brought in Iowa District Court in and for the County where the Jurisdiction is located or in the United Stated District Court in and for the District where the Jurisdiction is located.

(b) To the fullest extent permitted by law, Contractor and Jurisdiction hereto waive any right each may have to a trial by jury in respect of litigation directly or indirectly arising out of or in connection with this Agreement.

B. Contractor further consents that it will require its subrogees and assigns to enter into an agreement to comply with the terms of Section, 1.12, and consent to the jurisdiction of either the Iowa District Court in and for the County where the Jurisdiction is located or the United States District Court in and for the District where the Jurisdiction is located, as to any causes of action brought against it arising out of this contract or any work performed under it by Contractor or its subcontractors, and further agrees, on behalf of itself, its subrogees and assigns, to waive any and all objections to the jurisdiction of said court as to any such cause of action. Contractor shall make such consent a condition of the retention of subrogees and assigns.

1070, 2.10 DUST CONTROL: Add the following paragraph:

The Contractor shall be responsible to remove any project-related construction materials deposited on a public street as well as related dust control measures. The Contractor shall employ all means necessary to prevent tracking soil, or loss of material, onto public streets; including but not limited to, rocking private access roads and removing excess material from equipment before leaving the construction site. The Contractor shall promptly remove any material deposited on a public street utilizing mechanical scraping and street sweeping, or other means as required by the Jurisdictional Engineer.

1070, 3.02 INSURANCE REQUIREMENTS, A.: Delete A and replace them with the following A.

A. The contractor shall not purchase liability insurance in the name of the jurisdiction unless such purchase is allowed by special provision.
1070, 3.02 INSURANCE REQUIREMENTS, C. 2. Commercial General Liability Insurance: Revise the following limits on the Commercial General Liability Insurance:

- The Each Occurrence Limit shall be changed from $1,000,000 to $2,000,000.
- The Personal and Advertising Injury Limit, under Commercial General Liability, changed from $1,000,000 to $2,000,000.
- All other limits shall remain unchanged.

1070, 3.02 INSURANCE REQUIREMENTS, C. 3. Automobile Liability Insurance: Revise the following limits on the Automobile Liability Insurance:

- Minimum combined single limit per accident shall be changed from $1,000,000 to $2,000,000.

1070, 3.02 INSURANCE REQUIREMENTS, C.: Add the following sentence at the end of 1, 2, 3, and 5: “Waiver of Subrogation in favor of Jurisdiction is required.”

1070, 3.02 INSURANCE REQUIREMENTS, C., 6. Additional Insured Endorsements: Replace “Except for Workers Compensation, the insurance specified shall:”, with “Except for Workers Compensation and Railroad Protective Liability Insurance, the insurance specified shall:”.

1070, 3.02 INSURANCE REQUIREMENTS, C: Add the following new 8.

8. WAIVER OF SUBROGATION: To the fullest extent permitted by law, Contractor hereby releases the Jurisdiction, including their respective elected and appointed officials, agents, employees and volunteers and others working on their behalf from and against any and all liability or responsibility to the Contractor or anyone claiming through or under the Contractor by way of subrogation or otherwise, for any loss arising out of liability or occupational injury without regard to the fault of the Jurisdiction or the type of loss involved. This provision shall be applicable and in full force and effect only with respect to loss or damage occurring during the time of this Agreement. The Contractor’s policies of insurance shall contain a clause or endorsement to the effect that such releases shall not adversely affect or impair such policies or prejudice the right of the Contractor to recover thereunder.

1070, 3.03 CONTRACTOR’S INDEMNITY – CONTRACTUAL LIABILITY INSURANCE: Delete B.; and replace with the following B.

B. Except to the extent caused by or resulting from the negligent act or omission of the Jurisdiction or the Jurisdiction’s employees, consultants, agents or other for whom the Jurisdiction is responsible, to the fullest extent permitted by law, the Contractor shall defend, indemnify, and hold harmless the Jurisdiction and its officers, agents, employees, and consultants from and against all claims, damages, losses, and expenses, including but not limited to, attorney’s fees, arising out of or resulting from the performance or prosecution of the work by the Contractor, its subcontractors, agents, or employees; or arising from any neglect, default, or mismanagement or omissions by the Contractor, its subcontractors or consultants, suppliers, third parties, or the agents, officers, or employees of any of them in the performance of any duties imposed by the contract or by law; provided any such claim, damage, loss, or expense:

1. is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) including economic damages and the loss of use resulting therefrom, and

2. is caused in whole or in part by any act or omission of the Contractor, its subcontractors or consultants, suppliers, third parties, or the agents, officers, or employees of any of them, or anyone for whose acts any of them may be liable.
Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity that would otherwise exist as to any party or person described in this subsection.

1070, 3.04 CONTRACTORS INSURANCE FOR OTHER LOSSES; WAIVER OF SUBROGATION, B.: Delete B. and replace with the following B.

B. Contractor shall cause each of its subcontractors, consultants, suppliers, third parties, or the agents of any of them, to carry insurance sufficient to cover all loss to such materials, tools, motor vehicles, and equipment. All insurance carried by the Contractor, or its subcontractors, consultants, suppliers, third parties or the agents of any of them, covering risk of loss or damage to materials, tools, motor vehicles, and equipment used in the performance of the Work, shall provide a waiver of subrogation against the Jurisdiction, as specified in Section 1070, 3.02 Insurance Requirements, C.8. To the extent that any subcontractors, consultants, suppliers, third parties or the agents of any of them, do not provide such coverage, any uninsured loss shall be the sole responsibility of the Contractor.

1070, 3.05 PROPERTY INSURANCE: Delete A, D, and M; and replace them with the following A, D, and M.

A. Property Insurance Required: The Contractor shall purchase and maintain property insurance, being either Builder's Risk Insurance or an Installation Floater, for the period of the contract until final acceptance of the work by the Jurisdiction, on all construction contracts where a building, electrical, mechanical, or plumbing permit is required by the permitting entity.

1. Builder's Risk Insurance by Contractor: On contracts for construction of new buildings or on contracts when Builder's Risk Insurance is applicable to the contract by definition, the Contractor shall purchase and maintain Builder's Risk Insurance for the duration of the contract, unless the Jurisdiction states by special provision that the Jurisdiction shall purchase and maintain the Builder's Risk Insurance. This property insurance, Builder's Risk Insurance, provided by the Contractor shall be in the amount of the initial bid amount, or in an amount equal to the estimated value of actual building construction, whichever is less, as well as applicable modifications thereto for the entire work at the site on a replacement cost basis. Such property insurance shall be maintained, unless otherwise provided in the contract documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final acceptance of the work by the Jurisdiction. The insurance shall include interests of the Jurisdiction, the Contractor, subcontractors, and sub-subcontractors in the work. If the Contractor's property insurance covering the work has any deductible, the Contractor shall be responsible to pay the cost associated with the deductible. Flood and Earthquake Insurance shall be required as part of the Builder’s Risk Policy, and the minimum required policy limits shall be not less than 10% of the full amount of the contract. If Boiler and Machinery Insurance is required by the contract documents or by law, the Contractor shall purchase the Boiler and Machinery Insurance if the Contractor is required to purchase the Builder's Risk Insurance. If Boiler and Machinery Insurance coverage is included in the Contractor’s Builders Risk Insurance policy, it may be used to satisfy the Boiler and Machinery Insurance requirement to the extent such coverage specifically covers such objects during installation, testing, and until final acceptance by the Jurisdiction.

2. Builder's Risk Insurance by the Jurisdiction: When stated in the special provisions, the Jurisdiction shall purchase and maintain property insurance, a.k.a. Builder's Risk Insurance in the amount of the initial bid amount, or in an amount equal to the estimated value of actual building construction, whichever is less, as well as applicable modifications thereto for the entire work at the site on a replacement cost basis. Such property insurance shall be maintained, unless otherwise provided in the contract documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final acceptance of the work by the Jurisdiction. The insurance shall include interests of the Jurisdiction, the Contractor, subcontractors, and sub-subcontractors in the work. The Jurisdiction will determine an appropriate deductible for the property insurance covering the
work, however, the Contractor will be responsible for paying a deductible of up to $5,000 for each occurrence. Flood and Earthquake Insurance shall be required as part of the Builder's Risk Policy, and the minimum required policy limits shall be not less than 10% of the full amount of the contract. If Boiler and Machinery Insurance is required by the contract documents or by law, the Jurisdiction shall purchase the Boiler and Machinery Insurance if the Jurisdiction is required to purchase the Builder’s Risk Insurance. If Boiler and Machinery Insurance coverage is included in the Jurisdiction’s Builders Risk Insurance policy, it may be used to satisfy the Boiler and Machinery Insurance requirement to the extent such coverage specifically covers such objects during installation, testing, and until final acceptance by the Jurisdiction.

3. Installation Floater: On the remainder of these contracts where Builder’s Risk Insurance is not applicable to a contract by definition and an Installation Floater is applicable by definition, the Contractor shall purchase and maintain an Installation Floater for the duration of the contract. This Installation Floater shall cover all materials, fixtures, equipment, and supplies provided for the job. Such insurance shall be on an “all risk” form in an amount equal to the maximum value of such materials, equipment, or supplies covered on the job site, off-premises at any temporary storage location, or in transit, and shall include coverage for hoisting and rigging. The Installation Floater shall be maintained until final acceptance of the work by the Jurisdiction. If the Contractor’s Installation Floater covering the equipment and work has any deductible, the Contractor shall be responsible to pay the cost associated with the deductible. If Boiler and Machinery Insurance is required by the contract or by law, the Contractor shall purchase the Boiler and Machinery Insurance; the Installation Floater may be used to satisfy this requirement to the extent the Boiler and Machinery Insurance coverage specifically covers such objects during installation, testing, and until final acceptance by the Jurisdiction.

D. Boiler and Machinery Insurance: When required by the contract documents or by law, Boiler and Machinery Insurance shall specifically cover such insured objects during installation, testing, and until final acceptance by the Jurisdiction; this insurance shall include interest of the Jurisdiction, Contractor, subcontractors, and sub-subcontractors in the work, and the Jurisdiction and Contractor shall be named insureds. A Builders Risk Insurance policy or an Installation Floater, when also required by the contract documents or by law, may satisfy this requirement as indicated in 1070, 3.05 A.1, 2. and 3. above. If Boiler and Machinery Insurance is required by the contract documents or by law, the Contractor shall purchase the Boiler and Machinery Insurance. However, if the contract requires the Jurisdiction to purchase the Builder’s Risk Insurance, the Jurisdiction shall also purchase the Boiler and Machinery Insurance.

M. Installation Floater: See Section 1070, 3.05, A.3 above.

1070, 3.06 ENDORSEMENT NAMING JURISDICTION AS AN ADDITIONAL INSURED / CANCELLATION AND MATERIAL CHANGE/GOVERNMENTAL IMMUNITIES ENDORSEMENT: Under C, delete the first full paragraph regarding the Cancelation and Material Change Endorsement language and replace it with the following:

Thirty (30) days Advance Written Notice of Cancellation, ten (10) days Written Notification of Cancellation due to non-payment of premium and forty-five (45) days Advance Written Notification of Non-Renewal shall be sent to the Jurisdiction at the office and attention of the Certificate Holder. This endorsement supersedes the standard cancellation statement on the Certificate of Insurance to which this endorsement is attached.
1070, 3.06 ENDORSEMENT NAMING JURISDICTION AS AN ADDITIONAL INSURED /
CANCELLATION AND MATERIAL CHANGE/ GOVERNMENTAL IMMUNITIES
ENDORSEMENT: Replace first sentence under E. with the following: If allowed, as specified in Section
1070, 3.02 Insurance Requirements A., all liability policies purchased in the Jurisdiction’s name shall include a
Governmental Immunities Endorsement, pursuant to Iowa Code Section 670.4, which endorsement shall include
the following provisions:

1070, 3.07 PROOF OF INSURANCE: Add the following sentence at the end of A: “Mail Certificate of
Insurance to: Engineering Department, City of Des Moines, City Hall, 400 Robert D. Ray Drive,
Des Moines, Iowa 50309.”

SECTION 1080 – PROSECUTION AND PROGRESS

1090, 1.03 WORK PROGRESS AND SCHEDULE: Add the following new D:

D. No person shall operate or permit the operation of any tools or equipment in construction, drilling
or demolition work or in preventive maintenance work for public service utilities between the
hours of 10:00 p.m. and 7:00 a.m. without the written permission of the Engineer.

1080, 1.09 EXTENSION OF TIME, B. – Request for Extension of Time: Add the following sentence before
the last sentence in the first paragraph: “The request for an extension of time is the sole and exclusive
remedy of the Contractor for the events listed below.

SECTION 1090 – MEASUREMENT AND PAYMENT

1090, 1.02 SCOPE OF PAYMENT, Add the following D.

D. If the Contractor fails to notify the Engineer or the Engineers representative prior to
commencing work on various stages of work on the project, the work completed without
notifying the City may not be compensated.

1090, 1.04 PAYMENT FOR CHANGE ORDERS, C.: Replace with the following:

C. The percentage markup to be allowed to the Contractor for extra work performed by a
subcontractor shall include all overhead, profit, bond, and all subcontractor markups for
changes in work and shall be in accordance with the following:

1. 10% of the first $50,000 with a $100 minimum.
  5% of the portion over $50,000.

To include the markup on the change order, the Contractor shall, at the request of the
Engineer, furnish evidence satisfactory to the Engineer of the cost (rate or rates) paid for
such bond, insurance, and tax. This may include, at the request of the Engineer, a bond
rider for the performance bond.

1090, 1.05 PROGRESS PAYMENTS, B. Retainage: Delete B. in its entirety and replace with the following B.

B. Retainage: The Jurisdiction shall retain from each monthly progress payment 3% of the amount
determined to be due according to the estimate of the Engineer. Early release of retained funds
may be requested by the Contractor according to Iowa Code Section 573.28.
SECTION 2010 – EARTHWORK, SUBGRADE, AND SUBBASE

2010, 3.06 SUBGRADE PREPARATION, A. Uniform Composition: 1. Subgrade Compaction in Fill Sections: Add the following new e.

e. Proof roll subgrade as specified in Section 3.06, B. to locate soft or yielding areas prior to placement of top six-inch lift.

2010, 3.06 SUBGRADE PREPARATION, A. Uniform Composition: 2. Subgrade Compaction in Cut Sections: Add the following new d.

d. Prior to scarify, mix, and re-compact the bottom six inches of subgrade (paragraph 2.b above), proof roll subgrade as specified in Section 3.06, B to locate soft or yielding areas.

2010, 3.07 SUBGRADE TREATMENT, A. Lime, Cement, Fly Ash, or Ashphalt: Add the following new 3.

3. The Contractor shall comply with the following conditions when incorporating the subgrade treatments.

a. The Contractor shall not begin stabilization work if the following weather conditions are to happen within 24 hours after stabilization:

   Temperature expected to drop below 40°F within the first 24 hours of incorporation unless approved by the Engineer.
   Rain.
   Wind speeds of 15 mph or greater unless approved by the Engineer prior to stabilization work.

b. The subgrade treatment shall not be incorporated into frozen subgrade conditions.

c. The deviation from target range will not exceed 0.5% ± the approved mix design rate.

d. Contractor shall use a reclaimer machine with computerized water proportioning system that measures and applies the water directly into the mixing chamber when the machine is in motion. The treatment chemicals will be distributed via computerized vane feeder on the subgrade prior to mixing to minimize loss of treatment chemicals as dust. Dumping or blowing of treatment chemicals onto the subgrade will not be allowed.

e. During the compaction operation, no section shall be left undisturbed for longer than 20 minutes during compaction operations.

SECTION 3010 – TRENCH EXCAVATION AND BACKFILL

3010, 3.02 ROCK OR UNSTABLE SOILS IN TRENCH BOTTOM: Delete B. and replace with the following new B.
B. The Engineer will review the contractor’s request for the need for over-excavation and trench foundation stabilization and authorize the work prior to installation of pipes and structures.
3010, 3.05 PIPE BEDDING AND BACKFILL, E. Final Trench Backfill: 3. Class I and Class II Backfill Material: Delete a. and replace with the following new a.

a. Compact to at least 65% relative density within right-of-way or under any paved surface or within two feet thereof.

3010, 3.05 PIPE BEDDING AND BACKFILL, E. Final Trench Backfill: 4. Class III and Class IVA Backfill Material: Delete a. and replace with the following new a.

a. Compact to at least 95% of Standard Proctor Density within right-of-way or under any paved surface or within two feet thereof.

SECTION 4010 – SANITARY SEWERS

4010, 3.06 SANITARY SEWER SERVICE STUBS, C: Add the following new 7:

7. Mark the location of all sanitary sewer service stubs at the time of installation by a two-inch wide detectable marking tape installed at a depth of 18 inches to 24 inches below finished grade, directly over the service stub, for its entire length and brought up to the surface at the end of the service stub adjacent to the post marking the stub location. The tape shall be green in color and marked “Sanitary Sewer Service Stub Buried Below”.

4010, 3.10 SANITARY SEWER CLEANOUT: Delete in its entirety and replace with the following:

Cleanouts are not allowed on sanitary sewer mains in the City of Des Moines. Figure 4010.203 shall apply to services only.

SECTION 4020 – STORM SEWERS

4020, 2.01 STORM SEWERS, Parts A-L: Reinforced Concrete Pipe or Polypropylene Pipe shall be required for storm sewer construction in the Right-Of-Way or Public Easement areas. Minimum size of storm sewer pipe in the Right-Of-Way and Public Easement areas shall be 15-inch minimum diameter.

SECTION 4030 – PIPE CULVERTS

4030, 2.01 Pipe Culverts, Parts A-D: Reinforced Concrete Pipe shall be required for pipe culvert construction in the Right-Of-Way or Public Easement areas. Minimum size of pipe culverts in the Right-Of-Way and Public Easement areas shall be 15-inch minimum diameter.

SECTION 4040 – SUBDRAINS AND FOOTING DRAIN COLLECTORS

4040, 2.01 FOOTING DRAIN COLLECTORS: Use material for pipe and fittings complying with the current Adopted Edition of the Uniform Plumbing Code (UPC). In addition to the materials identified in the UPC, the pipe shall comply with ASTM D 3034, SDR 23.5 pipe will be allowed.

4040, 2.02 TYPE 1 SUBDRAINS (LONGITUDINAL SUBDRAIN), C. Corrugated Polyethylene Tubing and Fittings (Corrugated PE): Delete Type C and Type CP. Only Type S or Type SP are allowed in the City of Des Moines.

4040, 2.03 TYPE 2 SUBDRAINS (COMBINATION SUBDRAIN/FOOTING DRAIN COLLECTOR), B.3. HDPE Pipe: Delete Type CP. Only Type SP is allowed in the City of Des Moines.
FOOTING DRAIN SERVICE STUBS - Add this new 2.09 and the following note: Use material for pipe and fittings complying with the current Adopted Edition of the Uniform Plumbing Code (UPC). In addition to the materials identified in the UPC, the use of SDR 23.5 pipe will be allowed.

FOOTING DRAIN COLLECTORS, C: Add the following new 3:

3. Type B cleanouts should be used for footing drain collectors less than 5 feet in depth in the City of Des Moines. Footing drain collectors greater than 5 feet deep, a Type A cleanout shall be used.

FOOTING DRAIN SERVICE STUBS: Add the following new D and E.

D. Mark the location of all footing drain service stubs at the time of installation by a two-inch wide detectable marking tape installed at a depth of 18 inches to 24 inches below finished grade, directly over the service stub, for its entire length and brought up to the surface at the end of the service stub adjacent to the post marking the stub location. The tape shall be green in color and marked “Footing Drain Service Stub Buried Below”.

E. ABS, PVC and SDR 23.5 pipe shall be installed with a minimum bedding of 4” below and up all side with 3/8” clean smooth gravel or a bedding product approved by the Engineer.

FOOTING DRAIN CLEANOUTS: Add the following new Note 7 to Figure 4040.232.

7. Type B cleanouts should be used for footing drain collectors or combination subdrain/footing drain collectors less than 5 feet in depth in the City of Des Moines. Footing drain collectors greater than 5 feet deep, a Type A cleanout shall be used.

SECTION 4060 – CLEANING, INSPECTION, AND TESTING OF SEWERS

VIDEO INSPECTION, A. General: Delete 1. and replace with the following new 1.

1. Conduct video inspection of all new and rehabilitated sanitary sewers, storm sewers, pipe culverts, and footing drain collectors after all backfill and compaction operations are completed, but prior to paving, unless otherwise specified in the contract documents.

SECTION 6010 – STRUCTURES FOR SANITARY AND STORM SEWERS

6010, PARTS 1, 2, 3, and Figures: Unless specifically noted as precast construction on the construction drawings, all square or rectangular shaped intakes and manholes shall be cast-in-place. Circular precast intakes and manholes are allowed in the City of Des Moines.

REINFORCEMENT: Add the following second sentence: All reinforcement for cast-in-place structures shall be epoxy coated.

6010, 2.09 MANHOLE OR INTAKE ADJUSTMENT RINGS (Grade Rings): Add the following new C.

C. Manhole adjustment rings are not required to have pre-formed or pre-drilled holes for the anchor bolts.

CASTINGS (Ring, Cover, Grate, and Extensions), D. Casting Types: 2. - Intakes: Delete b. and replace it with the following b.

b. Castings shall include design shown in this General Supplemental for lids on Type E, F, and G storm sewer castings shown for Figure 6101.602. The casting design is shown in the figure titled Storm Sewer Lid For the City of Des Moines.
6010, 2.13 **STEPS:** Delete entire Section as manhole steps are not allowed in the City of Des Moines.

6010, 2.15 **ANCHOR BOLTS AND WASHERS, B. Diameter:** Delete B. and replace it with the following B.: Provide bolts and washers 1/8 inch smaller than hole or slot in the casting frame but not less than 7/8 inch diameter.

6010, 3.01 **GENERAL REQUIREMENTS FOR INSTALLATION OF MANHOLES AND INTAKES, J. Castings:** Delete J. and replace with the following J.: Install the type of casting specified in the contract documents and adjust to proper grade. Where a manhole or intake is to be in a paved area, adjust the casting to match the slope of the finished surface. When castings with a bolt down cover (Type C or D) are specified, attach casting frame to the structure with four anchor bolts.

6010, 3.03 **ADDITIONAL REQUIREMENTS FOR PRECAST CONCRETE STRUCTURES,** Add new F. following:

**F. FIELD MODIFICATION OF PRECAST STRUCTURES:** Significant modifications to precast structures to adjust elevations to field conditions will not be allowed. Significant modifications include, but are not limited to, excessive saw cutting of precast structures. Any field modifications to the precast structure shall be approved by the Engineer, or the Engineer’s representative, or the precast structure will not be accepted.

**SECTION 7010 – PORTLAND CEMENT CONCRETE PAVEMENT**

7010, 1.08 **MEASUREMENT AND PAYMENT,** Add new N. following:

**N. Cold Weather Protection:** When any type of additional protection described in 7010.3.04.A is necessary, additional payment will be made as extra work at the rate of $1.00 per square yard of surface protected. Payment will be limited to protection within the contract period. Protection necessary after November 15 will be paid only when the Engineer authorizes the work.

7010, 3.01 **EQUIPMENT, A. BATCHING AND MIXING EQUIPMENT, 2. BATCHING,** Add new d. following:

**d. Volumetric batching for Portland Cement Concrete will not be allowed unless authorized by the Engineer.**

7010, 3.01 **EQUIPMENT, C. CONCRETE PLACEMENT EQUIPMENT, 7. CONCRETE SAWs,** Add the following new 1:

1. Saw cutting operations shall be dustless in accordance with OSHA regulations.

7010, 3.02 **PAVEMENT CONSTRUCTION, E. BAR AND REINFORCEMENT PLACEMENT:** Add the following new 5:

5. PCC pavement slabs with manhole castings, with or without boxouts, shall have reinforcement similar to PV-103 around the castings.

7010, 3.07 **QUALITY CONTROL, D. PAVEMENT THICKNESS:** Add the following as the first sentences under 1: Coring of pavement will not be required by the City of Des Moines if depth checks of the plastic thickness of the pavement are within one-half inch of the design thickness. If the variance exceeds one-half inch this section shall apply.

7010, FIGURE 7010.101, JOINTS: On Sheet 2 of 8 under ‘C’ Joint in Curb add the following: The entire curb shall be sealed with Joint Sealant Material.
7010, FIGURE 7010.101, JOINTS: On Sheet 3 of 8 delete Note 11 and replace with the following Note 11.

11. Sawing and sealing of the joint is required. See Detail D-2. On Sheet 3 of 8 Joint Types KT-1, KT-2, and KT-3 shall not be used.

7010, FIGURE 7010.901, PCC PAVEMENT JOINTING: Add Note 6 with the following:

6. All new roadway pavements shall be a minimum width of 27 feet back to back with parking on one side and 33 feet with parking on two sides.

SECTION 7020 – HOT MIX ASPHALT PAVEMENT

7020, 3.01 HMA PAVEMENT, Add the following new H.:

H. The paver shall be capable of paving a minimum continuous width of twenty (20) foot wide strip without seam. Pavers in tandem will be acceptable; however, an adequate number of personnel shall be available to operate both pavers simultaneously.

7020, FIGURE 7020.901, HMA PAVEMENT: Add Note 3 with the following:

3. All new roadway pavements shall be a minimum width of 27 feet back to back with parking on one side and 33 feet with parking on two sides.

SECTION 7021 – HOT MIX ASPHALT OVERLAYS

7020, 3.01 HMA PAVEMENT, Add the following new C.:

C. The paver shall be capable of paving a minimum continuous width of twenty (20) foot wide strip without seam. Pavers in tandem will be acceptable; however, an adequate number of personnel shall be available to operate both pavers simultaneously.

SECTION 7030 – SIDEWALKS, SHARED USE PATHS, AND DRIVEWAYS

7030, 1.08 MEASUREMENT AND PAYMENT, Add new J. following:

J. Cold Weather Protection: When any type of additional protection described in 7010.3.04.A is necessary, additional payment will be made as extra work at the rate of $1.00 per square yard of surface protected. Payment will be limited to protection within the contract period. Protection necessary after November 15 will be paid only when the Engineer authorizes the work.

7030, 2.07 DETECTABLE WARNINGS: Add the following sentence at the end: Only cast iron detectable warnings are allowed in the City of Des Moines.

7030, 3.04 PCC SIDEWALKS, SHARED USE PATHS, AND DRIVEWAYS, A. Form Setting: Add the following new 6:

6. The turning space for a sidewalk or shared use path shall be formed separately from the adjoining ramps and sidewalk or shared use path.
7030, 3.04 PCC SIDEWALKS, SHARED USE PATHS, AND DRIVEWAYS, B. Concrete Pavement Placement, 1. Shared Use Path: Add the following sentence at the end: “When the Portland Cement Concrete is delivered to the project on the prepared subgrade or subbase, the loads shall be limited to 5 tons for single axle vehicles or 10 tons for tandem axle or larger vehicles.”

Add the following new 4:

4. Volumetric batching for Portland Cement Concrete will not be allowed unless authorized by the Engineer.

7030, 3.04 PCC, SIDEWALKS, SHARED USE PATHS, AND DRIVEWAYS, B. Concrete Pavement Placement, 2. Sidewalk: Add the following new g:

g. The turning space for a sidewalk or shared use path shall be placed separately from the adjoining ramps and sidewalk or shared use path.

7030, 3.04 PCC SIDEWALKS, SHARED USE PATHS, AND DRIVEWAYS, F. Jointing: 4. Isolation Joints: Delete b. and replace it with the following new b.

b. For a sidewalk constructed with a driveway, install a ½” expansion joint on the property side of the sidewalk and a ½” expansion joint on the street side of the sidewalk.

7030, 3.05 HMA SHARED USE PATHS AND DRIVEWAYS: Add the following second sentence: When Hot Mix Asphalt is delivered to the project on the prepared subgrade or subbase, the loads shall be limited to 5 tons for single axle vehicles or 10 tons for tandem axle or larger vehicles.

7030, FIGURE 7030.101, CONCRETE DRIVEWAY, TYPE A: Delete the references to “E Joint” on the property side of the sidewalk and “C or E Joint” on the street side of the sidewalk, and replace with “install a ½” expansion joint on the property side of the sidewalk and a ½” expansion joint on the street side of the sidewalk”. In addition, install a ½” expansion joint in the sidewalk at the extension of both edges of the driveway. Delete 7 and replace with the following 7; “Install a ½” expansion joint at the back of curb.”

7030, FIGURE 7030.102, CONCRETE DRIVEWAY, TYPE B: Delete the references to “E Joint” on the property side of the sidewalk and “C or E Joint” on the street side of the sidewalk, and replace with “install a ½” expansion joint on the property side of the sidewalk and a ½” expansion joint on the street side of the sidewalk”. In addition, install a ½” expansion joint in the sidewalk at the extension of both edges of the driveway.

7030, FIGURE 7030.201, CLASSES OF SIDEWALKS: The detail for CLASS A SIDEWALK shall be revised to delete the “4” min.” thickness dimension of the sidewalk and replace with “5” min.”.

7030, FIGURE 7030.202, CURB DETAILS FOR CLASS A SIDEWALK: On Detail 3 delete the note “Sealed ‘E’ joint” and replace it with the following note “Sealed ‘B’ joint”. On Detail 1, 2, and 3 delete the “4 min.” thickness dimension of the sidewalk and replace with “5” min.”.

SECTION 8030 – TEMPORARY TRAFFIC CONTROL

8030, Add new 3.04.A – Traffic Control Deficiency Deduction

A. Traffic Control Deficiency Deduction. When the Engineer is notified, or determines a traffic control deficiency exists, he/she will notify and direct the Contractor to correct the deficiency within a specified time. The specified time, which begins upon notification to the Contractor, will be from ½ hour to 12 hours based upon the urgency of the situation and nature of the deficiency as determined by the Engineer.
A traffic control deficiency may be any lack of repair, maintenance, or non-compliance with the traffic control plan. A traffic control deficiency may also be applied to situations where corrective action is not an option such as the use of non-certified flaggers for short term operations; working with lane closures beyond the time allowed in the contract; or failure to perform required contract obligations such as traffic control surveillance.

If a Contractor fails to correct a traffic control deficiency within the specified time, a daily monetary deduction from the pay item for Traffic Control will be imposed for each calendar day or fraction thereof the deficiency exists. The calendar day(s) will begin with the notification to the Contractor and end with the Engineer’s acceptance of the correction. The daily monetary deduction will be $2,500. For those deficiencies where corrective action was not an option, this monetary deduction will be immediate.

SECTION 9010 – SEEDING

9010, 3.02 – AREA OF SEEDING: Add A. and B.

A. Mobilize within 72 hours of a written order with sufficient labor, equipment, and materials to seeding work as ordered or approved by Engineer. Complete work within 7 calendar days of a written order.

B. Failure to mobilize and complete work within such time period, will result in a deduction of $750.00 per calendar day from payment due under the contract, except when Engineer extends such time period.

SECTION 9020 – SODDING

9020, 3.03 – SOD INSTALLATION: Delete A. and replace it with the following new A.

A. Do not install sod between the dates of June 1 and August 31, unless authorized by the Engineer.

B. Mobilize within 72 hours of a written order with sufficient labor, equipment, and materials to sod installation as ordered or approved by Engineer. Complete work within 7 calendar days of a written order.

C. Failure to mobilize and complete work within such time period, will result in a deduction of $750.00 per calendar day from payment due under the contract, except when Engineer extends such time period.

SECTION 9040 – EROSION AND SEDIMENT CONTROL

9040, 1.03 – SUBMITTALS: Add the following sentences: The Jurisdiction will not approve the contractor’s Stormwater Pollution Prevention Plan (SWPPP) or revisions to the SWPPP; instead, the Jurisdiction will only review and comment on the SWPPP and any revisions. The contractor shall submit to the Engineer a copy of the Iowa Department of Natural Resources authorization prior to the Jurisdiction’s issuance of the Notice to Proceed for the work.

9040, 1.08 – MEASUREMENT FOR PAYMENT, A. Stormwater Pollution Prevention Plan (SWPPP): Delete A. in its entirety and replace with the following A.

A. **Stormwater Pollution Prevention**: Item will be paid for as a lump sum for the project based on the following formula: 30% of the bid amount after review of the SWPPP by the Engineer and filing a Notice of Intent by the contractor, an additional 20% of the bid amount when 25% of the total original contract amount is earned, an additional 20% of the bid amount when 50% of the total original contract amount is earned, an additional 20% of the bid amount when 75% of the total original contract amount is earned, and the remaining 10% of the bid amount upon filing the Notice of Discontinuation by the contractor. Item shall include the following activities and work:

1. **Stormwater Pollution Prevention Plan (SWPPP) Preparation**: Item includes reviewing and preparation of any modifications necessary to the general SWPPP provided by the Jurisdiction based on the Contractor’s proposed scheduling and construction methods, filing a Notice of Intent for coverage of the project under the Iowa DNR NPDES General Permit No. 2, and
payment of associated NPDES permit fees. The Jurisdiction will publish the Public Notice of Storm Water Discharge and provide an affidavit of publication to the contractor.

2. **Management**: Item includes all work required to comply with the administrative provisions of the Iowa DNR NPDES General Permit No. 2; including record keeping, documentation, updating the SWPPP, filing the Notice of Discontinuation, etc. Item also includes weekly inspections required to satisfy the provisions of General Permit No. 2, unless otherwise stated in the contract documents.

3. **Inspection**: Item includes inspection of the disturbed areas, and erosion and sediment control measures performed by the contractor, at least once every seven (7) calendar days until the disturbed areas have been stabilized with a perennial vegetative cover of sufficient density to preclude erosion.

4. **Additional Erosion and Sediment Control Measures**: Item includes the cost of erosion and sediment control measures included in the contractor’s modifications to the general SWPPP provided by the Jurisdiction that are either not included as bid items on the proposal or exceed 20% of the proposal unit quantity for the measure, as well as replacement of these measures if needed. The contractor will be paid at the unit bid price for additional erosion and sediment control measures constructed that are included in the contractor’s modifications to the general SWPPP provided by the Jurisdiction when the quantity of these additional measures is less than or equal to 20% of the contract quantity for the measure.

**9040, 3.01 – SWPPP PREPARATION**: Delete in its entirety and replace with the following.

A. Review and prepare any modifications necessary to the general SWPPP provided by the Jurisdiction based on the Contractor’s proposed scheduling and construction methods. Prepare a Stormwater Pollution Prevention Plan (SWPPP) according to the requirements of the Iowa DNR NPDES General Permit No. 2.

B. Have the SWPPP prepared by an individual experienced in erosion and sediment control.

C. Ensure that controls utilized in the SWPPP conform to the type and quantity of erosion and sediment controls shown in the contract documents. See 9040,1.08, 4 above for measurement for payment of any erosion and sediment control measure used that is not shown in the contract documents or exceeds 20% of the contract quantity for the measure.

D. Submit the completed SWPPP to the Engineer for review and comment prior to filing the Notice of Intent.

E. The Jurisdiction will publish the Public Notice of Storm Water Discharge, as required by the NPDES General Permit No. 2 and provide an affidavit of publication to the contractor.

F. File the Notice of Intent and fee, as required by the NPDES General Permit No. 2.

G. Prior to beginning grading, excavation, or clearing and grubbing operations, all erosion and sediment control measures identified in the SWPPP shall be installed or constructed.

**9040, 3.02 – SWPPP MANAGEMENT**: Delete C. in its entirety and replace with the following C.

C. Submit all SWPPP revisions to the Engineer for review and comment.

**SECTION 9080 – CONCRETE STEPS AND HANDRAIL**

**9080, 2.01 – MATERIALS, B. Reinforcing Steel**: Add the following sentence at the end: “All reinforcement shall be epoxy coated.”