

**FORMAL CONTRACT AND SPECIFICATIONS
FOR
115KV CIRCUIT BREAKERS AT
WHELAN ENERGY CENTER
EAST 7TH ST SUBSTATION
FOR
CITY OF HASTINGS
HASTINGS, NEBRASKA**

Formal Contract No. HU 2022-02

**Sealed Proposals Will Be Opened Promptly At
1:30 PM, Tuesday, April 26, 2022**

Bid Submitted By: _____



THIS BID DOCUMENT MUST BE SUBMITTED WITH BID

ADVERTISEMENT FOR BIDS

The City of Hastings, Nebraska, will receive bids for the: **115KV CIRCUIT BREAKERS AT WHELAN ENERGY CENTER AND EAST 7TH ST SUBSTATION, HU 2022-02** until 1:30 p.m. at the Office of the City Clerk of Hastings, Nebraska, on Tuesday, April 26, 2022 at which time and place all bids will be publicly opened and read aloud. **Brief description of project: Manufacturing, testing and delivery of (2) High Voltage circuit breakers.** If you plan on bidding and are not already on our approved bidders list for this project, you are REQUIRED to fill out the Plan Holders Submittal Form that is located on the City website: <https://www.cityofhastings.org/bids/> .

The Contract Documents, including plans and specifications, are on file at the Office of the City Clerk of Hastings, 220 N Hastings Avenue, Hastings, Nebraska 68901. Copies of the plans and specifications in electronic (PDF) format may be obtained by visiting the City of Hastings Website: www.cityofhastings.org/bids. A paper copy is available for \$75.00, plus sales tax (\$5.25), plus shipping.

No bid shall be withdrawn after opening of bids without the consent of the City of Hastings, Nebraska, for a period of sixty (60) days after scheduled time of closing bids.

Time is of the essence in this contract. In evaluating bid(s) received, the City will consider the timelines of completion of prior construction contracts, existing workload of bidders and available manpower that bidder commits to the project.

DATED AT HASTINGS, NEBRASKA, this 5th day of April, 2022.

Kimberly S Jacobitz, City Clerk

For City Clerk: Publish and Attach two (2) Proofs of Publication
April 8, 2022
April 15, 2022

BIDDER'S CHECKLIST
115KV CIRCUIT BREAKERS AT
WHELAN ENERGY CENTER
EAST 7TH ST SUBSTATION
FOR
CITY OF HASTINGS
Formal Contract No. HU 2022-02

- One signed cover sheet with your company's name filled in
- One signed original set of Proposal fill in sheets
- Acknowledgement of Addenda. All addendums received must be acknowledged and signed, if applicable.
- Firm unit pricing; or the lump sum pricing as applicable.

IF YOU HAVE QUESTIONS OR NEED HELP ON THESE SPECIFICATIONS

**CONTRACT NO: HU 2022-02
115 KV CIRCUIT BREAKERS AT
WHELAN ENERGY CENTER AND
EAST 7TH ST SUBSTATION**

PLEASE CONTACT ANY OF THE FOLLOWING:

TECHNICAL QUESTIONS

Dale Reinhold.
Project Engineer
City of Hastings
1228 N. Denver Avenue
PO Box 289 (68902)
Hastings, NE 68901

Ph# 402-462-3661
Cell# 402-432-4682
Email: bidquestions@cityofhastings.org

Lee Vrooman
Director of Engineering
City of Hastings
1228 N. Denver Avenue
PO Box 289 (68902)
Hastings, NE 68901

Ph# 402-462-3657
Cell# 402-831-1361
Email: bidquestions@cityofhastings.org

GENERAL QUESTIONS OR REQUESTS

Rena Griess
Administrative Assistant – Engineering Dept. City of Hastings
Ph# 402-462-3665
Fax# 402-462-3666
Email: bidquestions@cityofhastings.org



INSTRUCTIONS TO BIDDERS

All proposal information, including any unit price fill in sheets or other required information, shall be submitted on the proposal forms hereto attached. Copies of addenda, if any, shall be signed and attached to the proposal. City of Hastings does NOT accept faxed or emailed bid returns.

Bidders shall inform themselves of all relevant matters, and, if awarded the contract, shall not be allowed any extra compensation by reason of any matter or thing concerning which such Bidder might not have fully informed himself, prior to the bidding.

The Bidder bidding on the Specifications herein, who has exceptions to those called for in the Specifications, must so state in the space provided on the Proposal fill in sheets and/or attach a letter explaining in detail the exceptions taken to those required in the Specifications. This letter of explanation shall become a part of the bid and shall be attached hereto. **Failure by the Bidder to outline his exceptions will require the successful Bidder to comply with these Specifications.**

The Purchaser will not assume obligations resulting from losses or damages until acceptance of the equipment.

If any person contemplating submitting a bid for this contract is in doubt as to the true meaning of any part of the Specifications or other proposed contract documents, he may submit to Purchaser a written request for an interpretation thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed documents will be made only by addendum duly issued or delivered to each person receiving a set of such documents. The Purchaser will not be responsible for any other explanation or interpretation of the proposed documents.

All addendums must be signed and attached to bid documents or proposal will not be accepted.

IMPORTANT MAILING (OR HAND DELIVERY) INSTRUCTIONS

Please address your return envelope as shown in the example below. All bids must be sealed in a properly marked envelope.

To hand deliver call Kim Jacobitz at 402-461-2312 to schedule a time for delivery.

Your Return Address

Office of the City Clerk of Hastings
Attn: Kim Jacobitz
220 N. Hastings Avenue
Hastings, NE 68901

**This Information MUST BE typed or written in the lower left hand corner of return envelope
OR SIMPLY CUT OUT AND TAPE ON YOUR RETURN ENVELOPE**



BID DOCUMENTS ENCLOSED

ATTN: Kim Jacobitz, City Clerk of Hastings

Formal Contract No: HU 2022-02

115KV Circuit Breakers at Whelan Energy Center/East 7th St Substation

Bid Opens: @ 1:30 pm on Tuesday, April 26, 2022

If returning Fed-X or similar carrier, please enclose the bid in an “inner” envelope which is sealed. Please make sure BOTH envelopes are properly marked on the OUTSIDE OF THE ENVELOPE as shown in the example above.

One bid per envelope. Bid submittal via email is not allowed. Bids must be checked in to the City Clerk prior to 1:30 pm deadline.

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EAST 7TH STREET SUBSTATION FOR CITY OF HASTINGS**

HU 2022-02

TO: City of Hastings
1228 N. Denver Ave
Hastings, NE 68901

Bid Opening: April 26, 2022 (Tuesday)
**SEALED BIDS MUST BE RECEIVED BY 1:30
P.M. AND WILL BE OPENED PROMPTLY AT
THAT TIME**

We, the undersigned, being familiar with all parts of these documents, being Notice to Bidders, Bid Proposal Price Sheets, Contract Document Forms, Plans and Specifications, Affidavit, and all other parts of this document, do herein submit our proposal to **Manufacture, factory test and deliver (2) High Voltage Circuit Breakers to the Whelan Energy Center and East 7th Street Substation with all specified appurtenances,** for the following price as shown on the fill in sheets, **including Nebraska Sales Tax.**

The labor portion is not subject to sales tax; however, the material portion is taxed accordingly. See following tax rules and regulation language*.

00320 – Proposal Fill-In Information

00320.1 General Proposal Information	
00320.1.1 Bidder's Contact Information	Bidder Response
Bidder's Proposal Date	
Corporate Information	
Company Name	
Taxpayer ID Number (or EIN)	
If PO awarded to Bidder, Purchase Order Addressee Name (Primary Contact)	
Title	
Address/Number, Street	
Address/City, State, Zip Code	
Email	
Phone	
Bidder Technical Contact Name	
Email	
Phone	
Bidder Commercial Contact Name	
Email	
Phone	
00320.1.2 Addenda	

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Number	Date	Description	Included in Proposal? (Yes/No)

00320.1.3 Taxes	
Does your proposal comply with the tax requirements? (Yes/No)	

00320.1.4 Proposal Validity	
00320.1.4.1 Is the Proposal Validity Period 60 days from the Proposal Due Date? (Yes/No)	
00320.1.4.2 Bidder's Proposal Expiration Date	
00320.1.4.3 Is Unit Adjustment Pricing firm until the end of the Warranty Period? (Yes/No)	

003020.1.5 Warranty	
Cost for warranty (36 months from equipment commissioning) provided (Yes or No)	
If No, please insert the price adder to meet the required base warranty period.	

00320.1.5 Declared Exceptions and Clarifications to the RFP Requirements	
<p>An exception is any variation from an express RFP requirement. A clarification is the means by which you offer to meet an RFP requirement if the RFP does not identify the specific means by which the requirement must be met. By submitting your proposal you hereby certify that the exceptions and clarifications listed below are your complete and exhaustive exceptions and clarifications to the RFP requirements. Provide specific explanations and accurately reference the RFP article number to which each applies. Exceptions of a general nature or that refer to your standard specifications or terms are not acceptable and will reflect unfavorably upon your company.</p>	

00320.1 General Proposal Information

00320.1.5.1a Does your proposal comply with all Commercial/Technical requirements?	
00320.1.5.1b If No, are all exceptions and clarifications listed below in Articles 00320.1.5.2 and 00320.1.5.3? (Yes/No)	

00320.1.5.2 Commercial Exceptions and Clarifications

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Count	RFP Article Reference	Exception or Clarification	Stated Commercial Exceptions and Clarifications
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

00320.1.5.3 Technical Exceptions and Clarifications			
Count	RFP Article Reference	Exception or Clarification	Stated Technical Exceptions and Clarifications
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

00320.2 Proposal Pricing
The base price is the fixed lump sum price for the base scope of Work described in the RFP. Do not include option pricing or alternative scope pricing in the base price.

00320.1 General Proposal Information

Base Price	\$ -
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00320.2.1 Base Price Breakdown					
Item 1	Equipment and Materials	UOM	QTY	Unt Price	Extended Price
B1	HIGH VOLTAGE CIRCUIT BREAKER, SF6, 145KV, 3000A	EA	2		\$ -
Item 2	Transportation/Delivery/Freight - All costs to pack, mark, and deliver equipment and materials DAP/DDP-Jobsite (Incoterms 2010)				\$ -

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Item 3	Operations and Maintenance Manuals	Quantity	Unit Rate	
	Operations and Maintenance Man. Proof Electronic	1		\$
	Operations and Maintenance Man. Final Hardcopy	4		\$
	Operations and Maintenance Man. Final Electronic	1		\$
Total (Should Equal Base Price Above)				\$

00320.2.2 Base Scope Price Impacts			
Price Impacts identify any possible reductions in the Bidder's price by removing or reducing commercial or technical requirements of the RFP. This is not intended to represent Alternative Scope. Alternative Scope is a replacement of a discrete portion of the Work (see Article 00320.4).			
Does Bidder identify any commercial or technical requirements of the Base Scope that, if removed or reduced, lower Bidder's Price?		Yes/No	
If yes, provide details as a Bid Submittal (see Article 00320.9).			

00320.5 Payment Schedule		
If you do not agree with the payment schedule below, declare an exception in Article 00320.1.5 and propose and alternate payment schedule		
00320.1 General Proposal Information		
Description	% of Purchase Order Total Price	Bidder Agrees (Yes/No)
Upon Delivery of all Equipment and Materials DAP/DDP Jobsite (Incoterms 2010)	90%	
Upon Completion of Energization and Testing	10%	

00320.6 Logistics		
00320.6.1 Jobsite Storage Requirements		Bidder Response
00320.1 General Proposal Information	Yes/No	
If yes, did you include special storage requirements in your proposal?	Yes/No	
00320.6.2 Shipments		
Will the Work be completely manufactured in your facilities?	Yes/No	
Origin	Country, State/Province, City	
For shipments that are Ocean FCL (Full Container Load), can your facility load those containers?	Yes/No/NA	
Will any part of the Work be manufactured in the facilities of others?	Yes/No	

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Origin	Country, State/Province, City	
	Ex Works Delivery Locations	
For shipments that are Ocean FCL (Full Container Load), can the facilities of others load those containers?	Yes/No/NA	
Number and Type of Shipments (TL, LTL, Ocean LCL, FCL, or Breakbulk)	Count/Type	
If TL/FCL - Total Number and Type of Truckload or Ocean Container(s)	Count	
If LTL/LCL or Breakbulk - Gross shipping weight of each shipping unit	lb/kg	
If LTL/LCL or Breakbulk - Dimension (L x W x H) of each shipping unit	in/mm	
Do any of the Goods being supplied have an Export Control Classification Number (ECCN) other than EAR99?	Yes/No	

00320.7 Subcontracting		Bidder Response
Except for the supply of expendable materials or minor components, do you plan to subcontract any of the Work?	Yes/No	
If yes, did you include a list of Sub-suppliers with your proposal?	Yes/No	

00320.8 Delivery/Completion Schedule and Applicable Liquidated Damages

If you do not agree to one or more delivery dates, submittal due dates, or liquidated damages in this Article 00320.8, declare an exception in Article 00320.1.5. Include the earliest possible delivery/completion dates in your exception and include a supporting preliminary milestone schedule.

00320.1 General Proposal Information

00320.8.1 Delivery

00320.8.1.1 Delivery Lead Times

	# of weeks	Bidder Response
Total number of weeks to submit drawings after Effective Date. Refer to Technical Schedule of Submittals Article 00320.8.2 for drawing information.		
Purchaser's engineering drawing review period.		3
Total number of weeks to fabricate and prepare for shipment after drawing approval.		
Total number of weeks for delivery.		
Total quoted weeks through delivery.		3

00320.8.1.2 Purchaser's Anticipated Award Date:

Based on the anticipated award date, indicate Bidder's ability to meet the Early / Required Delivery Dates, regardless of stated lead times.

Delivery DAP/DDP Jobsite	LD*	Early Delivery**	Required Delivery		Bidder Response
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Circuit Breakers	LD	18-Aug-22	1-May-23	Yes/No	
* "LD" means delivery of the specified Work after the "Required Delivery" date is subject to liquidated damages in accordance with applicable articles of Section GC.36					
** Purchaser will not accept delivery of the Work prior to the "Early Delivery" date unless previously agreed by Purchaser in a Purchase Order Revision. Delivery in the period between the "Early Delivery" and "Required Delivery" date is at the discretion of the successful bidder.					

00320.8.1.3 Will you make a single consolidated shipment?	Yes/No	
If no, have you included a proposed staggered shipping schedule with your proposal?	Yes/No	
00320.8.1.4 Have you included a preliminary milestone schedule with your proposal, which will include time for administrative entry of order into Bidder's system, execution/award of the order, drawing submittals and review period, procurement phases, fabrication, testing, packaging, delivery and (if applicable) a staggered shipping schedule?	Yes/No	
00320.8.1.5 What is your current delivery lead time for the materials/equipment listed in the RFP? Include time for transportation DAP/DDP Jobsite. State lead time in weeks after award or notice to proceed.	# of Weeks	
Have you provided current and projected shop loading and shop capacity curves for each location where the Work will be manufactured? NOTE: Projections should be for the next 6 months or for the time period when the goods will be manufactured.	Yes/No	

00320.8.2 Schedule of Submittals and Applicable Liquidated Damages									
Will you meet the below submittal dates as required by the RFP?								Yes/No	
00320.1 General Proposal Information								Yes/No	
Effective Date: TBD								Bidder Complies? Yes/No	
This list may not be all-inclusive. It will, however, remain the successful Bidder's responsibility to comply with submittal requirements whether or not the submittal is included in the following list:									
Item No.	Reference	Submittal Item	Submittal Dates			LDs Apply?			
			Calendar Days	Event	Due Date				
Supplier Commercial Submittals									
C01	None	Shipment Notice and Packing List	2	Before	Delivery of Equipment		No		
C02	GC.37	Security Instruments	30	After	Effective Date	TBD	No		
C04	None	Engineering/Procurement/Production/Testing and Inspection/Shipping Schedule and Status Report	30	After	Effective Date with Monthly Updates	TBD	No		
C05	None	Lien Waiver		With	Each Invoice (Except Final Invoice)		No		
C06	None	Final Lien Waiver		With	Final Invoice		No		

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C07	None	Electronic Material List	30	After	Effective Date with Monthly Updates	TBD	No	
C08	None	Preventative Maintenance and Jobsite Handling and Storage Requirements, if Applicable		With	Electronic Material List		No	
C09	None	Preshipment Inspection Notice	30	Before	Shipment of Equipment		No	
C10	None	Recommended Spare Parts List, with Unit Prices and Names of Suppliers, as Purchaser or Owner may elect to buy from for 5 years after Project Substantial Completion	90	After	Effective Date	TBD	No	
C11	GC.29.12	Insurance Certificates	30	After	Effective Date	TBD	No	
C12	None	Attend Jobsite Safety Orientation, if providing field service		Prior to	Working at Jobsite		No	
C13	GC.35	Safety Data Sheet (SDS) Forms		With	Each Shipment		No	
C14	None	Transport General Arrangement Drawings and Lift Drawings	90	Prior to	Delivery of Equipment		No	
Technical Submittals								
T01	16899	Outline drawings including overall height, length, width, center of gravity location, and weight.	30	After	Effective Date	TBD	No	
T02	16899	Notice of Factory Inspection or Tests	30	Before	Inspection or Tests		No	
T03	16899	Copies of Certified Test and Inspection Reports	15	After	Test or Inspection		No	
T04	16899	Design data and performance curves to Engineer:					No	
T05	16899	1. Current transformer ratio correction factor and excitation curve with internal resistance (at stated temperature reference) of the CT stated on the secondary excitation characteristic curve.	60	Before	Shipment of Equipment		No	
T06	16899	2. Foundation Loading Data	30	After	Effective Date	TBD	No	
T07	16899	Schedule of engineering to the Engineer	10	After	Effective Date	TBD	No	
T08	16899	Circuit Breaker Performance Data and Nameplate Information	45	After	Effective Date	TBD	No	
T09	16899	Acceptable Breaker Operating Current vs. Ambient Temperature Curve	30	After	Effective Date	TBD	No	
T10	16899	Recommended detailed erection sequence and procedure for Purchaser review	60	Before	With Proof Copy of Instructions Manual		No	

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T11	16899	Current transformer ANSI relaying and metering accuracy; thermal rating; secondary resistance at 25 degrees C (77.0 degrees F); phase angle correction factor curves	60	After	Effective Date	TBD	No	
T12	16899	Quality Manual, controlled copy	30	After	Effective Date	TBD	No	
T13	16899	Subsupplier listing	5	Before	Issue of Subsupplier Purchase Order		No	
T14	16899	Inspection and test plan	30	Before	Start of Fabrication		No	
T15	16899	Notification of inspection/test (for B&V hold/witness points)	14	Before	Test/Inspection		No	
T16	16899	Supplier to deliver drawings to Engineer	30	After	Effective Date	TBD	No	
T17	16899	1. Gas System	30	After	Effective Date	TBD	No	
T18	16899	2. Gas Bushing Outline	30	After	Effective Date	TBD	No	
T19	16899	3. Circuit Breaker Performance Data and Nameplate Information	30	After	Effective Date	TBD	No	
T20	16899	4. BCT Wiring Diagram	30	After	Effective Date	TBD	No	
T21	16899	5. BCT Nameplate	30	After	Effective Date	TBD	No	
T22	16899	6. Outline Diagram	30	After	Effective Date	TBD	No	
T23	16899	7. Schematic Diagram	30	After	Effective Date	TBD	No	
T24	16899	8. Wiring Diagram	30	After	Effective Date	TBD	No	
T25	19000	Certification Letter or Certificate of Authorization (copy), if certified by a registered agency, e.g., ASME Certificate of Authorization, ISO Certificate	30	After	Effective Date	TBD	No	
T26	19000	Subsupplier listing	5	Before	Issue of Subsupplier Purchase Order		No	
T27	19000	Notification of inspection/test (for B&V hold/witness points)	14	Before	Test/Inspection		No	
T28	19000	Quality Manual, uncontrolled copy	28	After	Effective Date	TBD	No	
T29	19000	Inspection and test plan with monthly inspection target dates	28	After	Effective Date and then monthly thereafter	TBD	No	
T30	Q301	Shop drawings that identify shop-applied coating systems	30	Before	Start of Fabrication		No	
T31	Q301	Manufacturer's product data sheets	30	After	Release to Proceed		No	

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T32	Q400	Shipment Plan providing details of field assembly work required as described in the Supplier's proposal.	30	After	Effective Date	TBD	No	
T33	Q500	Specific test and inspection reports/data, performance curves, design data and drawings, etc. should be listed in the SOS requirements for the applicable technical section.					No	
T34	Q500	For instruction manual submittal requirements, refer to Technical Supplemental Q501 and the commercial submittals section.		Upon	Shipment of Equipment		Yes	

00320.9 Bid Submittals		
Provide all documents listed in Article 00320.9 with your proposal. For any documents not submitted, declare an exception in Article 00320.1.5.		
00320.1 General Proposal Information		Provided with Proposal?
RFP Reference	Submittal Item	Yes/No
None	Section 00320 forms in Microsoft Excel format, with no embedded programming and no permissive encoding restricting access to the data provided.	
None	Base Scope Price Impacts	
None	Special Storage Requirements, if Applicable	
None	Sub-supplier List, if Applicable	
None	Preliminary Milestone Schedule	
None	Staggered Shipping Schedule, if Applicable	
None	Current and Projected Shop Loading and Shop Capacity Curves	
16899	Complete description of proposed circuit breakers.	
16899	Preliminary outline drawings showing estimated weights, dimensions, oil volumes, and location of major accessories.	
16899	Descriptive literature of all equipment proposed.	
16899	Summary description of codes and standards used if different than specified, including a review of major differences.	
16899	List of recommended spare parts.	
16899	List of special and maintenance tools to be furnished.	
16899	Supplier's experience record with proposed equipment.	
16899	List of routine factory tests.	
16899	Complete description of the extent of shop assembly of components.	
16899	Short-circuit withstand type data	

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For purposes of sales/use tax, this project falls under Nebraska Sales and Use Tax Regulation 1-017 for Contractors. By definition, a contractor is “any person who repairs property annexed to, or who annexes property to, real estate, including leased property, by attaching building materials to the annexed property or improvement being built or repaired, or who arranges for annexation of property.” Please refer to www.revenue.nebraska.gov/salestax.html for additional information.

For calculating this proposal:

- All contractors are to include sales/use tax on materials in the bidder’s prices, if applicable.
- **Option 1 contractors must separately state materials, sales tax, labor, and other charges on all invoices for the project. Any invoices submitted that do not include this required breakdown of the charges will not be accepted for payment. (This requirement does not apply to Option 2 or 3 contractors.)**
- The sales/use tax rate on building materials is 7.0% for projects within Hastings’ city limits and 5.5% for projects outside of city limits.
- Contractor labor charges for this proposal are not subject to sales/use tax per the Nebraska Department of Revenue Notice to Contractors effective October 1, 2007.
- In submitting this bid, the bidder certifies that he will comply with all applicable laws, ordinances, and codes of the City of Hastings and the State of Nebraska.
- For this project, Contractor will supply all materials.

What contractor option have you registered with the Nebraska Department of Labor (must select one)? Please refer to <https://dol.nebraska.gov> for additional information.

Option 1 _____

Option 2 _____

Option 3 _____

Is Nebraska Sales/Use Tax included in the pricing.

Yes _____ No _____

(ALL COSTS TO INCLUDE CITY AND STATE SALES TAX)

Any modification of bid proposal will be considered non-conformance of the bid. All exceptions to the proposal shall be noted as an exception to the bid.

City of Hastings may at its own discretion delete any project area and / or component prior to award of contract.

In submitting this proposal, it is further understood that the City of Hastings reserves the right to reject any or all proposals and may waive any informalities and may accept the proposal which best suits its needs. It is further understood that this proposal may not be withdrawn for a period of sixty days (60) days after bids are opened.

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All proposals shall have original signatures. Electronic time-stamped signatures will be acceptable. Photocopied or printed versions of bid bonds will be accepted without original signatures, however a hardcopy with original signatures must be received by City of Hastings within 5 business days.

OFFICIAL NAME & ADDRESS

_____	_____
Firm Name	Signature
_____	_____
Address	Typed or Printed Name
_____	_____
City, State, Zip	Title
_____	_____
Phone No.	Date
_____	_____
Fax No.	Email Address

ALL BIDS MUST BE CHECKED IN TO CITY CLERK
PRIOR TO 1:30 PM DEADLINE

AGREEMENT

THIS AGREEMENT, made and entered into this day of, by and between the City of Hastings, Party of the First Part, hereinafter called the "Purchaser" or "City", and a of (town) in the State of , Party of the Second Part, hereinafter called the "Contractor".

WITNESSETH: THAT,

WHEREAS: The Purchaser has caused the necessary contract documents to be prepared for defining material, equipment, and/or labor to be supplied to the City of Hastings, and delivered complete as specified in the accompanying contract documents.

WHEREAS: The Purchaser has advertised for bids from Contractors, has received said bids, analyzed same and duly awarded a contract to the "Contractor", "Party of the Second Part", for material, equipment, and/or labor as hereinafter set forth and as stated more in detail in the Proposal and related contract documents to wit; Notice to Bidders, Instructions to Bidders, Specifications; all of which documents are attached hereto and made a part of this Contract.

NOW, THEREFORE: It is hereby agreed that for the sum of . (\$)

to be paid by the Purchaser, within Thirty (30) days after the acceptance of material, equipment, and/or labor by the Purchaser, to the Contractor, the Contractor agrees to furnish all materials, equipment, and/or labor as required by the accompanying specifications, and the aforesaid contract documents, for **115kv Circuit Breakers at Whelan Energy Center and East 7th Substation City of Hastings, Utilities Department HU 2022-02.**

All materials, equipment, and/or labor shall be in accordance with the accompanying contract documents and specifications which are as much a part of this Agreement as if repeated verbatim herein.

It is further agreed that the Contractor will start work promptly, furnish the necessary drawings promptly and complete the work in the number of days set forth in the Proposal.

IN WITNESS WHEREOF: The Parties of the First and Second Parts have hereto set their hands and seals on the day and year above written.

AGREEMENT

CITY OF HASTINGS
Party of the First Part

By: _____

Date: _____

ATTEST:

City Clerk

CONTRACTOR
Party of the Second Part

SEAL

By: _____

Title: _____

Date: _____

APPROVED TO FORM:

City Attorney

Note: If executed by one other than President, Partner or the individual Owner, a Power-of-Attorney authorizing execution should accompany this Contract.

AFFIDAVIT

State of Nebraska)

) ss.

County of Adams)

I _____,
Name Title

of _____
Firm Name

do hereby certify that all subcontractors, vendors, persons or firms who have furnished labor or material for the

have been fully paid and that all taxes have been paid.

Signature

Date

Subscribed and sworn to me this _____ day of _____, 20

Notary Public

My commission expires_____.

A signed and notarized copy of affidavit must be in City of Hastings file before the final payment may be made.

Copy of forms will be supplied by City of Hastings prior to final payment.

GENERAL CONDITIONS

GC.1 CONTRACT DOCUMENTS. It is understood and agreed that the Notice to Bidders, Instructions to Bidders, Proposal, Proposal Data, Contract Agreement, General Conditions, Specifications, Drawings, Addenda, and Change Orders issued by the Purchaser or the Engineer, and specifications and engineering data furnished by the Supplier and accepted by the Purchaser, are each included in this Contract and the work shall be done in accordance therewith.

GC.2 DEFINITIONS. Words, phrases, or other expressions used in these contract documents shall have meanings as follows.

1. "Contract" or "contract documents" shall include the items enumerated above under CONTRACT DOCUMENTS.
2. "Purchaser" shall mean the City of Hastings named and designated in the Contract Agreement as "Party of the First Part," and their duly authorized agents. All notices, letters, and other communication directed to the Purchaser shall be addressed and delivered to:

City of Hastings
1228 North Denver Avenue
P.O. Box 289
Hastings, Nebraska 68902-0289

Attention: Mr. Lee Vrooman
Director of Engineering

3. "Supplier" shall mean the corporation, company, partnership, firm or individual named and designated in the Contract Agreement as the "Party of the Second Part," who has entered into this Contract for the performance of the work covered thereby, and its, his, or their duly authorized representatives.
4. "Sub-Supplier" shall mean and refer only to a corporation, partnership, or individual having a direct contract with the Supplier for performing work covered by these contract documents.
5. "Engineer" shall mean Black & Veatch Corporation, a Delaware corporation.
6. "Date of contract," or equivalent words, shall mean the date written in the first paragraph of the Contract Agreement.

7. "Day" or "days," unless herein otherwise expressly defined, shall mean a calendar day or days of 24 hours each.
8. "The work" shall mean the equipment, supplies, materials, labor, and services to be furnished under the contract and the carrying out of all obligations imposed by the contract documents.
9. "Drawings" or "plans" shall mean all (a) drawings furnished by the Purchaser as a basis for proposals, (b) supplementary drawings furnished by the Purchaser to clarify and to define in greater detail the intent of the contract drawings and specifications, (c) drawings submitted by the successful bidder with his proposal, provided such drawings are acceptable to the Purchaser, (d) drawings furnished by the Purchaser to the Supplier during the progress of the work, and (e) engineering data and drawings submitted by the Supplier during the progress of the work, provided such drawings are acceptable to the Engineer.
10. Whenever in these contract documents the words "as ordered," "as directed," "as required," "as permitted," "as allowed," or words or phrases of like import are used, it shall be understood that the order, direction, requirement, permission, or allowance of the Purchaser or Engineer is intended only to the extent of judging compliance with the terms of the contract; none of these terms shall imply that the Purchaser or the Engineer has any authority or responsibility for supervision of the Supplier's forces or construction operations, such supervision and the sole responsibility therefor being strictly reserved for the Supplier.
11. Similarly the words "approved," "reasonable," "suitable," "acceptable," "proper," "satisfactory," or words of like effect and import, unless otherwise particularly specified herein, shall mean approved, reasonable, suitable, acceptable, proper, or satisfactory in the judgment of the Purchaser or Engineer, to the extent provided in (10) above.
12. Whenever in these contract documents the expression "it is understood and agreed" or an expression of like import is used, such expression means the mutual understanding and agreement of the parties executing the Contract Agreement.
13. "Official acceptance" shall mean the Purchaser's written acceptance of all work performed under this Contract, based on the Engineer's final inspection and issuance of a final payment certificate.
14. "Final Acceptance" shall mean that all work has been completed in accordance with these specifications, the project has been walked down, punch list items have been completed, and Purchaser is ready to accept the Work as complete.

GC.3 EXECUTION OF CONTRACT. Once the bids have been evaluated, the Purchaser will electronically submit the Contract Agreement to the Supplier. The Supplier shall sign the Contract Agreement and return to Purchaser for the final approval process. Upon final approvals, the Contract Agreement will be signed by the Purchaser and electronically returned to the Supplier. Supplier shall then mail one hardcopy of required bonds, one electronic or hardcopy of insurance documents, and one electronic or hardcopy of power of attorney forms to the Purchaser. The date of contract on the bond forms and power of attorney forms shall match the date provided on the Contract Agreement by the Purchaser.

The Purchaser will review the final documents and electronically send a final conformed contract to the Supplier.

GC.4 LEGAL ADDRESSES. The business address of the Supplier listed in the Proposal is hereby designated as the place to which all notices, letters, and other communication to the Supplier will be mailed or delivered. The address of the Purchaser appearing on Page GC-1 is hereby designated as the place to which all notices, letters, and other communication to the Purchaser shall be mailed or delivered. Either party may change his address at any time by an instrument in writing delivered to the Engineer and to the other party.

GC.5 SCOPE AND INTENT OF CONTRACT DOCUMENTS. The various parts of the contract documents are intended to supplement but not necessarily duplicate each other. Any work exhibited in one part and not in another shall be executed as if it had been set forth in all parts, so that the work will be performed according to the complete design as determined by the Engineer.

Should anything necessary for a clear understanding of the work be omitted from the contract documents, or should the requirements appear to be in conflict, the Supplier shall secure written instructions from the Engineer before proceeding with the work affected thereby. It is understood and agreed that the work shall be performed according to the true intent of the contract documents.

GC.6 INDEPENDENT SUPPLIER. The relationship of the Supplier to the Purchaser shall be that of an independent supplier.

GC.7 ASSIGNMENT. The Supplier shall not assign the work, or any part thereof, without the previous written consent of the Purchaser, nor shall he assign, by power of attorney or otherwise, any of the money payable under this Contract unless written consent of the Purchaser has been obtained. No right under this Contract, nor claim for any money due or to become due hereunder shall be asserted against the Purchaser, or persons acting for the Purchaser, by reason of any so-called assignment of this Contract or any part thereof, unless such assignment has been authorized by the written consent of the Purchaser. In case the Supplier is permitted to assign moneys due or to become due under this Contract, the instrument of assignment shall contain a clause subordinating the claim of the assignee to all prior liens for services rendered or materials supplied for the performance of the work.

GC.8 ORAL STATEMENTS. It is understood and agreed that the written terms and provisions of this agreement shall supersede all oral statements of representatives of the Purchaser, and oral statements shall not be effective or be construed as being a part of this Contract.

GC.9 REFERENCE STANDARDS. Reference to the standards of any technical society, organization, or association, or to codes of local or state authorities, shall mean the latest standard, code, specification, or tentative standard adopted and published at the date of taking bids, unless specifically stated otherwise.

GC.10 SOURCE OF MATERIALS. Supplier to fill in applicable information on proposal sheets.

GC.11 SUPPLIER TO CHECK DRAWINGS AND LISTS. The Supplier shall check all dimensions, elevations, and quantities indicated on the drawings and lists furnished to him by the Engineer. The Supplier shall notify the Engineer of any discrepancy between the drawings and the conditions at the site, or any error or omission in the drawings, or in the layout as given by stakes, points, or instructions, which he may discover in the course of the work. The Supplier will not be allowed to take advantage of any error or omission in the drawings or other contract documents. Full instructions will be furnished by the Engineer should such error or omission be discovered, and the Supplier shall carry out such instructions as if originally specified.

GC.12 FIGURED DIMENSIONS TO GOVERN. Dimensions and elevations indicated on the drawings shall be accurately followed even though different from scaled measurements. No work indicated on the drawings, the dimensions of which are not indicated, shall be executed until necessary dimensions have been obtained from the Engineer.

GC.13 NO WAIVER OF RIGHTS. Neither the inspection by the Purchaser or Engineer or any of their officials, employees, or agents, nor any order by the Purchaser or Engineer for payment of money, or any payment for, or acceptance of, the whole or any part of the work by the Purchaser or Engineer, nor any extension of time, nor any possession taken by the Purchaser or its employees, shall operate as a waiver of any provision of this Contract, or of any power herein reserved to the Purchaser, or any right to damages herein provided, nor shall any waiver of any breach in this Contract be held to be a waiver of any other or subsequent breach.

GC.14 AUTHORITY OF THE ENGINEER. To prevent delays and disputes, and to discourage litigation, it is agreed by the parties to this Contract that the Engineer shall determine the quantities of work which are to be paid for under the contract and shall resolve all questions in relation to the work.

If, in the opinion of the Supplier or the Purchaser, a decision made by the Engineer is not in accordance with the meaning and intent of the contract, either party may file with the Engineer and the other party to the contract, within 30 days after receipt of the decision, a written objection to the decision. Failure to file an objection within the allotted time will be

considered acceptance of the Engineer's decision and the decision shall become final and conclusive.

The Engineer's decision and the filing of the written objection thereto shall be a condition precedent to the right to request mediation or to start action in court.

It is the intent of this agreement that there shall be no delay in the execution of the work and the decision of the Engineer as rendered shall be promptly observed.

GC.15 ENGINEERING INSPECTION. The Purchaser may appoint (either directly or through the Engineer) such inspectors as the Purchaser deems proper to inspect the work for compliance with the contract documents. The Supplier shall furnish all reasonable assistance required by the Engineer, or inspectors, for the proper inspection of the work. Should the Supplier object to any interpretation of the contract by an inspector, the Supplier may make written appeal to the Engineer for a decision.

Inspectors shall have the authority to reject work which is unsatisfactory, faulty, or defective or does not conform to the requirements of the contract documents. Inspection shall not relieve the Supplier from any obligation to construct the work strictly in accordance with the contract documents.

Upon the failure of the Supplier or its Subsuppliers to comply with any of the requirements of this Contract (but not limited to quality or safety), the Purchaser shall have the authority to stop any portion of the work affected by such failure until such failure is remedied. If the Purchaser issues a Stop Work Order, the Purchaser shall not be liable for any costs or expenses claimed by Supplier arising out of such issuance. The construction schedule shall not be delayed or extended as a result of the Purchaser's issuance of a Stop Work Order.

GC.16 SUPPLIER DEFAULT. If the work to be done under this Contract is abandoned by the Supplier; or if this Contract is assigned by him without the written consent of the Purchaser; or if the Supplier is adjudged bankrupt; or if a general assignment of his assets is made for the benefit of his creditors; or if a receiver is appointed for the Supplier or any of his property; or if at any time the Engineer certifies in writing to the Purchaser that the performance of the work under this Contract is being unnecessarily delayed, that the Supplier is violating any of the conditions of this Contract, or that he is executing the same in bad faith or otherwise not in accordance with the terms of said contract; or if the work is not substantially completed within the time named for its completion or within the time to which such completion date may be extended; then the Purchaser may serve written notice upon the Supplier and his surety of the Purchaser's intention to terminate this Contract. Unless within 5 days after the serving of such notice, a satisfactory arrangement is made for continuance, this Contract shall terminate. In the event of such termination, the surety shall have the right to take over and complete the work, provided that if the surety does not commence performance within 30 days, the Purchaser may take over and prosecute the work to completion, by contract or otherwise. The Supplier and his surety shall be liable to the Purchaser for all excess cost sustained by the Purchaser by reason of such prosecution and completion. The

Purchaser may take possession of, and utilize in completing the work, all materials, equipment, tools, and plant on the site of the work.

GC.17 BEGINNING, PROGRESS, AND COMPLETION OF THE WORK. The time of completion is a basic consideration of this Contract. Unless otherwise specified in these contract documents or advised by written order of the Purchaser, the Supplier shall begin work within 10 days after the date of contract. The work shall be prosecuted to completion in accordance with the specified schedule, subject to adjustment as provided in these contract documents.

A detailed construction schedule shall be prepared by the Supplier and submitted to the Purchaser for review. The schedule shall contain the various activities required to perform the work and the dates the activities will be started and completed in order to complete the work in accordance with the specified schedule requirements. The Supplier is responsible for determining the sequence and time estimates of the detailed construction activities. However, the Purchaser reserves the right to require the Supplier to modify any portion of the schedule the Purchaser determines to be impracticable or unreasonable; as required to coordinate the Supplier's activities with those of other suppliers, if any, engaged in work for the Purchaser on the site; to avoid undue interference with the Purchaser's operations; and to assure completion of the work by the date or dates stipulated. Upon acceptance by the Purchaser of the Supplier's detailed construction schedule, the Supplier will be responsible for maintaining such schedule.

If at any time the Supplier's work is behind schedule, he shall immediately put into effect definite procedures for getting the work back on schedule. The procedures shall be subject to review and modification by the Purchaser.

GC.18 HINDRANCES AND DELAYS. The Supplier expressly agrees that in undertaking to complete the work within the time specified, he has made allowances for all hindrances and delays which might usually be expected to occur in performing the work. No claims shall be made by the Supplier for such hindrances and delays.

If the Supplier experiences hindrances and delays which, in his opinion, are not usually to be expected in the performance of the work and which affect the performance of the work, he may request a change in the contract. Such hindrances and delays may include, but not be limited to, acts or failure to act by the Purchaser or other suppliers employed by the Purchaser, fires, floods, labor disputes, epidemics, or acts of God. Such hindrances and delays shall not include rain, snow, or other inclement weather. Claims by the Supplier for any change in the contract due to such hindrances and delays shall be made in accordance with the requirements of Article GC.22, CHANGES TO THE CONTRACT. The Supplier shall use all reasonable means to minimize the extent of the delay.

GC.19 SUSPENSION OF WORK. The Purchaser reserves the right to suspend and reinstate execution of the whole or any part of the work without invalidating the provisions of the contract.

Suspension or reinstatement of the work will be by written notice to the Supplier from the Purchaser.

Suspension of work shall not automatically entitle the Supplier to additional compensation or a change in the contract time; however, the Supplier will be reimbursed for real and unavoidable direct costs incurred by him as a result of such suspension and/or the contract will be extended as required to compensate for any delay due to such suspension. Claims by the Supplier for change of contract time or an adjustment of the contract price, due to work suspensions ordered by the Purchaser shall be made in accordance with the requirements of Article GC.22, CHANGES TO THE CONTRACT. The Supplier shall use all reasonable means to minimize the consequences of such suspension.

GC.20 CANCELLATION OF WORK. The Purchaser reserves the right to cancel the unshipped portion of the work by giving written notice to the Supplier. In the event of cancellation, the Purchaser will pay the Supplier reasonable and proper cancellation costs.

Cancellation of the work shall not constitute the basis for a claim for damages or loss of anticipated profits.

The Supplier shall, after consultation with the Purchaser, take all reasonable steps to minimize the costs related to cancellation. The Supplier shall provide the Purchaser with an accounting of costs claimed, including adequate supporting information, and the Purchaser may, at its expense, audit the claimed costs and supporting information.

GC.21 MODIFICATIONS. The Supplier shall modify the work whenever so ordered by the Purchaser and such modifications shall not affect the validity of the contract. Modifications may involve changes in the amount of the work to be performed or changes in the contract time for which appropriate changes to the contract will be made.

Contract changes due to modifications shall be made in accordance with the requirements of Article GC.22, CHANGES TO THE CONTRACT.

GC.22 CHANGES TO THE CONTRACT. The contract may be changed only by duly executed change orders issued by the Purchaser.

If, in the opinion of the Purchaser or the Supplier, any event or action by the other party justifies a change in the contract, either party shall initiate with the other party, within 5 days after such event or action, a request for a change to the contract. All documentation required to substantiate the proposed change shall be submitted within a minimum reasonable time after initiating the request for change. Upon the parties reaching agreement regarding the proposed change, the Purchaser will issue a written change order therefor.

Notwithstanding the foregoing provisions requiring duly authorized change orders, in the event agreement has been reached between authorized representatives of the parties regarding the change in the contract pending processing of such change order, the Supplier shall proceed with the work on the basis of written interim authorization from the Purchaser.

If the Supplier claims that any instruction, request, drawing, specifications, or other directive or action of the Purchaser or the Engineer constitutes a change in the contract, but has not been authorized as such by a change order in writing by the Purchaser, the Supplier shall immediately request a written interim authorization and proceed without delay to perform the work in accordance with such authorization. The Supplier shall provide written notice of the claim or dispute to the Engineer and the Purchaser within 5 days of the request for interim authorization. The Supplier's failure to give said written notice within the 5 day period shall constitute a waiver and relinquishment of any such claim or dispute. The Purchaser's written interim authorization shall not constitute approval of the claim for increased or decreased work, but shall be a condition precedent to the Supplier's right to receive payment for such work and to the Supplier's right to prosecute or maintain any proceeding to recover for such work.

GC.22.1 Contract Price Changes. The contract price may be changed due to modifications which involve extra work or decreased work; or due to work suspensions, hindrances, and delays over which the Supplier has no control. Claims for changes in the contract price shall conform to the requirements specified herein.

GC.22.1.1 Increased Price. If a change in the contract is required due to work suspensions or hindrances and delays, the contract price will be increased according to agreed lump sums, agreed acceleration costs, or other demonstrable costs submitted by the Supplier and substantiated to the satisfaction of the Purchaser.

If a change in the contract price is required due to a modification which increases the amount of the work, and the added work or any part thereof is of a type and character which can properly and fairly be classified under one or more unit price items of the contract, then the contract price will be increased according to the amount actually done and at the applicable unit price. Otherwise, such work shall be paid for as herein-after provided.

Contract price changes for modifications involving extra work will be based on agreed lump sums or on agreed unit prices whenever the Purchaser and the Supplier agree upon such prices before the extra work is started; otherwise, payments for extra work will be based on actual direct cost plus the specified percentage allowance.

For the purpose of determining whether proposed extra work will be authorized, or for determining the payment method for extra work, the Supplier shall submit to the Engineer, upon request, a detailed cost estimate for proposed extra work. The estimate shall indicate itemized quantities and charges for all elements of direct cost. Charges for the Supplier's and subsupplier's extra profit, extra general superintendence, extra field office expense, and extra overheads shall be indicated as a percentage addition to the total estimated direct cost. Unless otherwise agreed upon by the Supplier and the Purchaser, such percentage additions shall be 15 percent for the extra work performed by the Supplier's own forces or 20 percent for extra work performed by a subsupplier.

When payment for extra work is based on actual direct cost, the Supplier will be paid the actual direct cost plus an allowance of 15 percent if the extra work is performed by the Supplier's own forces or 20 percent if the extra work is performed by a subsupplier. The allowance will be paid as full compensation for the Supplier's and subsupplier's extra profit, extra general superintendence, extra field office expense, extra overheads, and all other elements of extra cost not defined herein as actual direct cost.

The actual direct cost shall include only those extra costs for labor and material expended in direct performance of the extra work and may include the following.

- a. The actual payroll cost of all workmen such as laborers, mechanics, craftsmen, and foremen.
- b. The Supplier's or subsupplier's net cost for materials and supplies.
- c. The rental charge for vehicles and construction equipment.
- d. The transportation charges for equipment.
- e. The charges for extra power, fuel, lubricants, water, and special services.
- f. The charges for extra payroll taxes, bond premiums, and insurance premiums.

The form in which actual direct cost records are kept, the construction methods, and the type and quantity of equipment used shall be acceptable to the Engineer.

Construction equipment which the Supplier has on the jobsite and which is of a type and size suitable for use in performing the extra work shall be used. The hourly rental charges for equipment shall not exceed 1/2 percent of the latest applicable monthly rental rates as published by Dataquest Incorporated in its "Rental Rate Blue Book" and shall apply to only the actual time the equipment is used in performing the extra work.

When extra work requires the use of equipment which the Supplier does not have on the jobsite, the Supplier shall obtain the concurrence of the Engineer before renting or otherwise acquiring additional equipment. The rental charges for the additional equipment shall not exceed the latest applicable "Rental Rate Blue Book" published rental rates.

GC.22.1.2 Decreased Price. If a change in the contract price is required due to a modification which decreases the amount of work, such decrease shall not constitute the basis for a claim for damages or anticipated profits on work affected by such decrease. Where the value of omitted work is not covered by applicable unit prices, the Engineer shall determine, on an equitable basis, the amount of (a) credit due the Purchaser for contract work deleted as a result of an authorized change, (b) allowance to the Supplier for any actual loss incurred in connection with the purchase, delivery, and subsequent disposal of materials or equipment required for use on the work as planned and which could not be used in any part

of the work as actually built, and (c) any other adjustment of the contract amount where the method to be used in making such adjustment is not clearly defined in the contract documents.

Unless otherwise agreed upon by the Purchaser and the Supplier, the credit due the Purchaser for reductions in the amount of work to be done shall be the estimated direct cost of the deleted work plus an overhead allowance of the following.

10 percent of the estimated direct cost if the work was to have been done by the Supplier's own forces, or

15 percent of the estimated direct cost if the work was to have been done by a subsupplier.

Direct cost referred to above shall include the category of costs listed as actual direct costs, Items (a) to (f) inclusive of the article entitled Increased Price.

GC.22.2 Contract Time Changes. The contract time may be changed due to work modifications, hindrances and delays, and work suspensions over which the Supplier has no control.

Contract time will not be changed for delays caused by unfavorable weather or unsuitable ground conditions normally incident to the work, inadequate construction force, failure to place timely orders for equipment and materials, or other causes within the control of the Supplier.

GC.23 STEP DISPUTE RESOLUTION In the event of any controversy, claim or dispute between the Parties arising out of or relating to this Agreement, including its enforcement, such controversy, claim or dispute, including disputes regarded as such by only one of the Parties, the Parties shall negotiate in good faith to resolve such dispute, including third party mediation, if the Parties so agree.

If no settlement is achieved, either Party may pursue a claim in a federal or state court with competent jurisdiction.

GC.24 LAWS AND REGULATIONS. The Supplier shall observe and comply with all ordinances, laws, and regulations, and shall protect and indemnify the Purchaser and the Purchaser's officers and agents, including the Engineer, against any claim or liability arising from or based on any violation of the same.

GC.25 TAXES, PERMITS, AND LICENSES. The Supplier shall pay all sales, use, and other taxes that are lawfully assessed against the Purchaser or Supplier in connection with the work and shall obtain and pay for all required licenses, permits, and inspections.

The Supplier will be compensated for any increase in tax rates, license fees, and permit fees or any new taxes, licenses, or permits imposed after the date of the Proposal; provided, however, that this provision shall be limited to sales, use, and excise taxes assessed against the completed work and to licenses and permits required specifically for the proposed work.

GC.26 PATENTS. Royalties and fees for patents covering materials, articles, apparatus, devices, equipment, or processes used in the work shall be included in the contract amount. The Supplier shall satisfy all demands that may be made at any time for such royalties or fees and he shall be liable for any damages or claims for patent infringements. The Supplier shall, at his own cost and expense, defend all suits or proceedings that may be instituted against the Purchaser for alleged infringement of any patents involved in the work and, in case of an award of damages, the Supplier shall pay such award. Final payment to the Supplier by the Purchaser will not be made while any such suit or claim remains unsettled.

GC.27 MATERIALS AND EQUIPMENT. Unless specifically provided otherwise in each case, all materials and equipment furnished for permanent installation in the work shall conform to applicable standard specifications and shall be new, unused, and undamaged when installed or otherwise incorporated in the work. No such material or equipment shall be used by the Supplier for any purpose other than that intended or specified, unless such use is specifically authorized by the Purchaser in each case.

All required tests in connection with acceptance of source of materials shall be made at the Supplier's expense by a properly equipped laboratory of established reputation whose work and testing facilities are acceptable to the Purchaser. Any change in origin or method of preparation or manufacture of a material being routinely tested will require new tests. Reports of all tests shall be furnished to the Engineer or Purchaser in as many copies as required.

GC.28 WARRANTY. The Supplier guarantees that the work herein contracted will be as specified and will be free from defects in design, workmanship, and materials. Supplier does not guarantee or warrant parts subject to normal wear and tear during operation. If within the warranty period the work fails to meet the provisions of this warranty, the Supplier shall promptly correct any defects, including nonconformance with the contract documents by adjustment, repair, or replacement of all defective parts or materials at the Supplier's option and expense, after consulting with the Purchaser on the proposed remedy plans.

Except as otherwise prescribed by the terms of any special warranties required by the contract documents, the warranty period shall begin from the date of equipment commissioning and run for a period of 36 months.

The cost of all materials, parts, labor, transportation, supervision, special tools, and supplies required for replacement or repair of parts and for correction of defects shall be paid by the Supplier or by the surety.

This warranty shall be extended to cover all repairs and replacements furnished under the warranty and the period of the warranty for each such repair or replacement shall be 12

months after correction of the defect except as otherwise prescribed by the terms of any special warranties required by the contract documents.

The Supplier will be given an opportunity to confirm the existence of the defect, but he shall not delay the correction while making such determination.

If within 10 days after the Purchaser has notified the Supplier of a defect, failure, or abnormality in the work, the Supplier has not started to make the necessary repairs or adjustments, the Purchaser is hereby authorized to make the repairs or adjustments or to order the work to be done by a third party; the cost of the work to be paid by the Supplier.

In the event of an emergency where, in the judgment of the Purchaser, delay would cause serious loss or damage, repairs or adjustments may be made by the Purchaser or a third party chosen by the Purchaser without advance notice to the Supplier and the cost of the work shall be paid by the Supplier or by the surety.

Supplier makes no other representations or warranties of any other kind, express or implied, by fact or by law, other than those contained in these General Conditions. All warranties other than those specifically set forth herein are expressly disclaimed except those warranties of the manufacturers of the supplies furnished to Supplier by the manufacturer(s).

GC 29 SUPPLIER'S INSURANCE COVERAGE. The Supplier shall not commence work under this Contract until Supplier has obtained all the insurance required under this article. Furthermore, the Supplier shall not allow any sub-supplier to commence work under this Contract until the sub-supplier has obtained the same insurance as is required of the Supplier. The sub-supplier alone shall be responsible for the sufficiency of its own insurance program.

GC.29.1 Certificates of Insurance. Certificates of Insurance acceptable to the City shall be filed with the City prior to commencement of the work. These Certificates shall contain a provision that coverages afforded under the policies will not be canceled, or materially altered, until at least 30 days prior written notice has been given to the City. All insurance carried shall conform to the relevant provisions of the respective Project Documents and be with insurance companies which are rated "A, X" or better by Best's Insurance Guide, or other insurance companies of recognized responsibility satisfactory to the City.

GC.29.2 Additional Insureds. Insurance coverages furnished under this Contract, with the exception of Workers' Compensation and Employer's Liability, shall include the City of Hastings and their partners, directors, officers, agents, and employees as Additional Insureds on a primary and noncontributory basis, and shall include Products and completed operations with respect to the activities of the Supplier and shall be maintained for the full duration of the project including for a period after completion to include the statute of repose.

Notwithstanding any other provision of these policies, the insurance afforded shall apply separately to each insured, with respect to any claim, suit, or judgment made or brought by or for any other insured, as though a separate policy had been issued to each, except the

insurer's liability shall not be increased beyond the amount or amounts for which the insurer would have been liable had only one insured been named.

The City shall not by reason of their inclusion under these policies incur liability to the insurance carrier for payment of premium for these policies.

GC.29.3 Waiver Of Subrogation. The Supplier and their sub-supplier shall require their insurance carriers, with respect to all insurance policies, to waive all rights of subrogation against the City their partners, directors, officers, agents, and employees.

GC.29.4 Workers' Compensation And Employer's Liability Insurance. The Supplier shall procure, and shall maintain during the life of this Contract, Workers' Compensation Insurance as required by workers' compensation laws of the State of Nebraska and also of the state in which the sub-supplier is domiciled.

The Supplier shall also be protected against claims for injury, disease, or death of employees which, for any reason, may not fall within the provisions of a workers' compensation law. The Employer's Liability Insurance shall contain the following limits of liability:

Bodily Injury by Accident	\$500,000 each accident
Bodily Injury by Disease	\$500,000 each employee
Bodily Injury by Disease	\$500,000 policy limit

GC.29.5 General Liability Insurance. This insurance shall be written per project on an "occurrence" policy form, including coverage for premises/operations, products/completed operations, broad form property damage, blanket contractual liability, independent supplier's and personal injury, with no exclusions for explosion, sudden and accidental pollution or an absolute or total pollution exclusion, collapse and underground perils. The commercial general liability policy shall also include a severability of interest clause and a cross liability clause in the event more than one entity is "named insured" under the liability policy. If applicable, this policy shall also be endorsed to include railroad protective with limits no less than replacement cost of the value of any real property covered under any rail agreement entered into by the City. If work is being done near a railroad track, the 50' railroad right of way exclusion must be deleted.

Limits of Insurance shall be as follows:

Each Occurrence Limit	\$1,000,000
Products/Completed Operations	\$2,000,000
General Aggregate Limit	\$2,000,000
Personal and Advertising Injury	\$1,000,000

GC.29.6 Pollution Liability – (If Applicable).

Limits of at least: \$1,000,000 per occurrence; \$1,000,000 aggregate

If Supplier or its Sub-subsupplier's work includes but not limited to remediating, handling, processing or disposing of hazardous material including but not limited to asbestos

containing materials, silica, lead, PCBs, contaminated soil, etc, coverage shall be provided for bodily injury, property damage and clean-up costs resulting for pollution conditions.

GC.29.7 Riggers Liability – (If applicable). Should work involve the moving, lifting, lowering, rigging or hoisting of property or equipment Supplier shall carry Rigger’s Liability Insurance to insure against physical loss or damage to the property or equipment on a Replacement Cost Basis

GC.29.8 Automobile Liability Insurance. This insurance shall be written under a Business Auto Policy and shall protect the Supplier and Additional Insureds against claims arising from injuries to members of the public or damage to property of others arising from the use of automobiles whether such automobiles are owned, non-owned, or hired. Automobile insurance shall include Motor Carrier Endorsement Act MCS 90 and transportation pollution coverage if applicable. If work is being done near a railroad track, the 50’ railroad right of way exclusion must be deleted.

Limit of Liability	\$1,000,000 each accident
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GC.29.9 Umbrella Liability Policy. This insurance shall protect the Supplier and the Additional Insureds against all claims in excess of the limits provided under the employer's liability, automobile liability, and general liability policies. The liability limits of the umbrella liability policy shall be not less than \$5,000,000 per occurrence. This policy shall be an "occurrence" type policy. However, City reserves the right to require higher limits with respect to each project.

GC.29.10 Professional Liability (Applicable for suppliers providing or is responsible for providing design/engineering/surveying services/or consulting services):

Limits of at least:	\$1,000,000 per occurrence; \$1,000,000 aggregate
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Policy shall provide for a retroactive date prior to the starting date of services for which this agreement applies. Policy shall not exclude bodily injury, property damage, or pollution liability. Coverage shall remain in force for a minimum of 3 years following substantial completion of construction through either policy renewal or the purchase of an Extended Reporting Provision. Supplier agrees to waive its rights of recovery. Subsupplier’s insurer shall endorse the policy to waive subrogation against Owner and their respective agents, officers, directors and employees.

GC.29.11 Transportation Insurance. Supplier shall purchase inland marine coverage at the expense of Supplier on all equipment and materials, where City has an insurable interest. Insurance shall protect for Supplier and City from physical loss of equipment while loading, unloading, in transit to jobsite, and until equipment or materials have been installed or received by City.

GC.29.12 Proof of Carriage of Insurance. Satisfactory certificates of insurance shall be filed with the City prior to starting any construction work on this contract. The certificates shall state that thirty (30) days written notice shall be given to the City before any policy covered thereby is changed or canceled.

GC.29.13 Property Insurance A.K.A. Builder's Risk. Unless otherwise provided, the SUPPLIER shall purchase and maintain property insurance, a.k.a. builder's risk insurance, on the building construction project in amount thereto for entire work at site on a replacement cost basis. Such property insurance shall be maintained, unless otherwise provided in contract documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final acceptance of work by OWNERS. Insurance shall include interests of OWNERS, SUPPLIER, SUBSUPPLIER, and sub-suppliers in work. This property insurance covering work will have deductible for each occurrence, which will be responsibility of SUPPLIER.

Before an exposure to loss may occur, the SUPPLIER will provide a copy of the property insurance policy or evidence of property insurance, upon request that includes all property insurance coverages. The SUPPLIER will not cancel or allow such policy to expire without written notice to the other.

Waivers of Subrogation: OWNER and SUPPLIER and all SUBSUPPLIERS waive all rights against

(1) each other and any of their subsuppliers, sub-subsuppliers, agents and employees, each of the other, and (2) OWNER'S or SUPPLIER'S consultants, separate suppliers, if any, and any of their subsuppliers, sub-subsuppliers, agents and employees, for damages caused by fire or other perils to extent covered by property insurance obtained, or other property insurance applicable to work, except such rights as they have to proceeds of such insurance held by OWNER and/or SUPPLIER as fiduciary. OWNER and/or SUPPLIER, as appropriate, shall require of OWNER'S and/or SUPPLIER'S consultants, separate suppliers, if any, and subsuppliers, sub-subsuppliers, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. Policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay insurance premium directly or indirectly and whether or not person or entity had an insurable interest in property damaged.

GC.30 Indemnification. To the fullest extent permitted by laws and regulations, the Supplier shall defend, indemnify, and hold harmless the City, their officers, directors, partners, consultants, agents, and employees from and against all claims, damages, losses, and expenses, direct, indirect, or consequential (including but not limited to fees and charges of engineers, architects, attorneys, and other professionals and court and arbitration costs) arising out of or resulting from the performance of the work by the Supplier, any sub-supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the work, or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder or arises by or is imposed by law and regulations regardless of the negligence of any such party.

In any and all claims against the City, or of any of their officers, directors, partners, consultants, agents, or employees by any employee of the Supplier, any sub-supplier, any

person or organization directly or indirectly employed by any of them to perform or furnish any of the work or anyone for whose acts any of them may be liable, this indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Supplier or any such sub-supplier or other person or organization under workers' or workmen's compensation acts, disability benefit acts, or other employee benefit acts, nor shall this indemnification obligation be limited in any way by any limitation on the amount or type of insurance coverage provided by the City, the Supplier, or any of their sub-suppliers.

GC.31 RELEASE OF LIABILITY. Acceptance by the Supplier of the last payment shall be a release to the Purchaser and every officer and agent thereof, from all claims and liability hereunder for anything done or furnished for, or relating to the work, or for any act or neglect of the Purchaser or of any person relating to or affecting the work.

GC.32 CLAIMS FOR LABOR AND MATERIALS. The Supplier shall indemnify and save harmless the Purchaser from all claims for labor and materials furnished under this Contract. When requested by the Purchaser, the Supplier shall submit satisfactory evidence that all persons, firms, or corporations who have done work or furnished materials under this Contract, for which the Purchaser may become legally liable, have been fully paid or satisfactorily secured. In case such evidence is not furnished or is not satisfactory, an amount will be retained from money due the Supplier which, in addition to any other sums that may be retained, will be sufficient, in the opinion of the Purchaser, to liquidate all such claims. Such sum will be retained until the claims as aforesaid are fully settled or satisfactorily secured.

Before final acceptance of the work by the Purchaser, the Supplier shall submit to the Engineer a notarized affidavit stating that all sub-suppliers, vendors, persons, or firms who have furnished labor or materials for the work have been fully paid and that all taxes have been paid. If a performance bond has been executed, a statement from the surety shall also be submitted consenting to the making of the final payment.

GC.33 FINAL INSPECTION. When the work has been substantially completed and at a time mutually agreeable to the Purchaser and Supplier, the Purchaser will make a final inspection of the work as to the acceptability and completeness of the work.

GC.34 PAYMENTS. Payment will be based on Section 00320.5 Payment Schedule found in the proposal fill in sheets.

GC.35 HAZARDOUS MATERIALS. As required under Federal Hazardous Communications Standards and certain state and local laws, the Supplier shall provide Material Safety Data Sheets covering all hazardous materials furnished under or otherwise associated with the work under this Contract. The Supplier shall provide the Purchaser with either copies of the applicable Material Safety Data Sheets or copies of a document certifying that no Material Safety Data Sheets are required under any federal, state, or local law, regulation, statute, or ordinance in effect at the jobsite.

Hazardous materials are defined in the applicable statute which may use the terminology "toxic substances" instead of "hazardous materials." The Supplier is responsible for determining if any substance or material furnished, used, applied, or stored under this Contract is within the provisions of any applicable statute.

If the work under this Contract includes onsite construction or erection, the Supplier shall provide written notice of the presence of hazardous materials to local fire, medical, and law enforcement agencies as required with a copy of such notice to the Purchaser.

The Supplier shall provide labeling of hazardous materials and training of employees in the safe usage of such materials as required under any applicable federal, state, or local law, regulation, statute, or ordinance.

GC.36 LIQUIDATED DAMAGES.

GC.36.1 General. Supplier's failure to meet the requirements identified in this Article GC.36 will cause Purchaser to incur harm that will be very difficult to ascertain with certainty. The Parties therefore agree the liquidated damages specified in this Article GC.36 represent a reasonable estimate of Purchaser's harm and are not intended as a penalty. The Purchaser and Supplier specifically agree the per business day amount to be assessed as liquidated damages is fair and reasonable and not excessive. The parties further agree that said per calendar day amount accurately reflect the anticipated loss and inconvenience to the public and lost revenue to or use by the Purchaser due to the project not being completed by the end of the project period or the end of the contract completion date.

Supplier's obligation to pay liquidated damages for breach of one specified requirement does not relieve Supplier of its obligation to pay liquidated damages for breach of another specified requirement. Supplier's payment of liquidated damages for breach of the specified requirement is Purchaser's sole and exclusive remedy with regard to Supplier's breach of that requirement, except for any other express remedies, with the exception of GC.36.6, stated in the Purchase Order. Seller's maximum aggregate liability for all Liquidated Damages under Section GC.36.2 and GC.36.3 shall not exceed ten percent (10%) of the Contract price.

GC.36.2 Submittals. Not Used

GC.36.3 Delivery of Equipment. Each item of equipment subject to liquidated damages for late delivery is listed in the article titled "Completion/Delivery Schedule and Applicable Liquidated Damages." If all components comprising the item of equipment do not meet the Purchase Order requirements and are not free of damage or defects when delivered, liquidated damages will accrue for each failure as shown below.

Beginning on the first calendar day after the specified delivery date for each item of equipment and continuing until delivery of the item of equipment is completed delay liquidated damages will be assessed at the rate of five hundred dollars (\$500) per

calendar day. Supplier will not be subject to liquidated damages for Purchaser's inability to accept delivery of equipment.

Liquidated Damages will be assessed at the rates listed above, but shall be capped at ten percent (10%) of the Contract price.

GC.37 SECURITY INSTRUMENTS-Not Used

GC.38 CONSEQUENTIAL DAMAGES

Except for Supplier's third party obligations arising out of or liability for breach of Articles GC.26 and/or GC.30, Purchaser and Supplier will not be liable to each other for loss of profits, loss of use, loss of contracts, or consequential damages arising out of this Contract. This Section will not relieve Supplier of any obligation under GC.36.

GC.39 LIMITATION OF LIABILITY

With the exception of (a) indemnification stated in Article GC.30 and (b) the insurance coverages and limits set forth in Article GC.29, Supplier's total limit of liability on any claim, whether for breach of Contract, breach of warranty, tort, negligence, strict liability, or any other legal theory, for any loss or damage arising out of or connected to, or resulting from this Contract, shall be limited to the purchase price to be paid by Purchaser.

GC.40 CONFIDENTIALITY

"Confidential Information" means the confidential or proprietary designs, know-how, processes, trade secrets, and other information owned or controlled by Purchaser, Engineer, or Supplier respectively. Supplier agrees to hold any Confidential Information received in the strictest confidence, shall only use the Confidential Information as necessary to perform The work. Purchaser agrees to hold any Confidential Information received in the strictest confidence and shall only use the confidential information as necessary for engineering, construction, start-up, commissioning, maintenance, or other purposes related to the project. Each party shall use the same degree of care as is used for its own information of similar importance, but no less than reasonable care.

GC.41 E-Verify The Supplier is required and hereby agrees to use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska. A federal immigration verification system means the electronic verification of the work authorization program authorized by the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, 8 U.S.C. 1324a, known as the E-Verify Program, or an equivalent federal program designated by the United States Department of Homeland Security or other federal agency authorized to verify the work eligibility status of a newly hired employee.

GC.42 Non-Discrimination Program Pursuant to the Title VI Non-Discrimination Program of the City of Hastings the Supplier agrees to comply with the provisions below for the CITY's Title VI Non-discrimination Program, if applicable.

During the performance of this contract, the Supplier, for itself, its assignees and successors in interest (hereinafter referred to as the "Supplier") agrees as follows:

- (1) Compliance with Regulations: The Supplier shall comply with the Regulation relative to nondiscrimination in Federally-assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations, Part 21, and the Federal Highway Administration (hereinafter "FHWA") Title 23, Code of Federal Regulations, Part 200 as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.
- (2) Nondiscrimination: The Supplier, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin, sex, age, and disability/handicap in the selection and retention of subsuppliers, including procurements of materials and leases of equipment. The Supplier shall not participate either directly or indirectly in the discrimination prohibited by 49 CFR, section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.
- (3) Solicitations for Subsuppliers, Including Procurements of Materials and Equipment: In all solicitations either by competitive bidding or negotiation made by the Supplier for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subsupplier or supplier shall be notified by the Supplier of the Supplier's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin, sex, age, and disability/handicap.
- (4) Information and Reports: The Supplier shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the (Recipient) or the FHWA to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a Supplier is in the exclusive possession of another who fails or refuses to furnish this information the Supplier shall so certify to the (Recipient), or the FHWA as appropriate, and shall set forth what efforts it has made to obtain the information.
- (5) Sanctions for Noncompliance: In the event of the supplier's noncompliance with the nondiscrimination provisions of this contract, the (Recipient) shall impose such contract sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:
 - (a.) withholding of payments to the supplier under the contract until the Supplier complies, and/or
 - (b.) cancellation, termination or suspension of the contract, in whole or in part.
- (6) Incorporation of Provisions: The Supplier shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto.

The Supplier shall take such action with respect to any subcontract or procurement as the (Recipient) or the FHWA may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that, in the event a Supplier becomes involved in, or is threatened with, litigation with a subsupplier or supplier as a result of such direction, the supplier may request the (Recipient) to enter into such litigation to protect the interests of the (Recipient), and, in addition, the Supplier may request the United States to enter into such litigation to protect the interests of the United States.

Hastings Utilities

High Voltage Circuit Breakers

410455.63.6110

**Issued for Bid
12/8/2021**



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16899 - High Voltage SF₆ Circuit Breakers

16899.1 General

16899.1.1 Scope of Supply

The scope of supply shall include furnishing outdoor SF₆ circuit breaker equipment, materials, and accessories indicated on the HV SF₆ Circuit Breaker Specification and Data Sheets included at the end of this section. Circuit breakers furnished shall be complete with all accessories ready for mounting, assembly, connection, and immediate service.

The requirements of the individual Specification and Data Sheets and electrical control scheme shall govern should conflicts occur between them and the written text of these specifications.

16899.1.2 Items Furnished by Others and Interfaces

The following items of work will be furnished by the Purchaser:

Offloading, storing, field assembly, and field erection of all equipment.

Foundations, foundation bolts, bolt sleeves, and equipment bases.

Grouting materials and the placing thereof.

Permanent electric wiring to connect equipment terminal boxes to the substation electrical system.

Solvents and cleaning materials

Operating personnel for startup and tests.

16899.1.3 Codes and Standards

Work performed under these specifications shall be done in accordance with the following codes and standards. Unless otherwise specified, the applicable governing edition and addenda to be used for all references to codes or standards specified herein shall be interpreted to be the jurisdictionally approved edition and addenda. If a code or standard is not jurisdictionally mandated, then the current edition and addenda in effect at the date of this document shall apply. These references shall govern the work except where they conflict with the Purchaser's specifications. In case of conflict, the latter shall govern to the extent of such difference:

Work	In Accordance With
HV SF ₆ Circuit Breaker(s)	ANSI, ASME, ASTM, IEC, IEEE, NEMA, OSHA, ANSI C37 Series, NEMA SG 4

16899.1.4 Not Used

16899.1.5 Not Used

16899.1.6 Test Requirements

The following testing shall be conducted in accordance with the specified source. This testing is to be considered part of the defined Scope of Work, and all associated costs are the responsibility of the Supplier unless specifically identified as a Bid Option or Purchaser-conducted. Tests identified as an option are to be priced separately. If identified as Purchaser-conducted, costs for the initial test will be the responsibility of the Purchaser. However, the Supplier is responsible for all costs associated with correcting deficiencies and retesting in the event of a test failure:

Tests	In Accordance With	Conducted By
Production tests	ANSI C37 Series, NEMA SG 4	Supplier

16899.1.7 Technical Attachments

Not used.

16899.2 Products

16899.2.1 General

Circuit breakers shall be 3 pole, single-throw, gang operated, single pressure puffer type using SF₆ gas as the insulation and arc quenching medium.

The circuit breaker design shall be dead-tank type with current transformers mounted on each side of the interrupters.

Circuit breaker shall be capable of withstanding without damage or internal flashover 1.5 times nominal line-to-ground system voltage under one atmosphere of SF₆ gas pressure. Under this condition, the circuit breaker is not required to open or close.

Circuit breakers shall be capable of 180 degree out-of-phase switching.

Circuit breakers shall be designed and constructed for the wind, ice, seismic withstand, and terminal loading conditions specified on the Circuit Breaker Specification and Data Sheets.

All lamps, either for general illumination or for indication, shall be LED.

16899.2.2 Enclosures

The operating mechanism and necessary auxiliary devices shall be furnished in weatherproof, dust resistant enclosures (control cabinet), mounted on the breaker frame. The enclosure shall be of the type specified on the Circuit Breaker Specification and Data Sheets.

The breaker control cabinet shall provide the internal wiring for the breaker system and the interface between the Purchaser's control and power circuits to the breaker. The control cabinet shall allow sufficient space for termination of Purchaser-furnished control and power circuits.

All external circuits will enter the bottom of the control cabinet through conduit. The control cabinet shall be provided with a gasketed, removable, blank bottom plate which can be drilled or punched on the field for entry of conduits. The blank bottom plate shall be located inside the control cabinet to facilitate future conduit installation. All ventilating openings shall be louvered to prevent entrance of rain and shall be equipped with fine mesh filters and stainless steel bug screens.

Control cabinet doors shall have a three-point cabinet type latch with a single handle and shall include provisions for padlocking.

The overall dimensions of the control cabinet including the dimension from the bottom of the control cabinet to the circuit breaker base shall be shown on the preliminary and final outline drawing. The dimensions and thickness of the removable bottom plate shall also be shown.

A copper grounding bar, approximately 6.35 mm (1/4") thick and at least 305 mm (12") long by 25 mm (1") wide, with terminal screws, shall be located in a convenient position in the control cabinet near the terminal blocks for grounding of incoming control and power cables.

Indicators and control devices mounted in the control cabinet shall have device nameplates made from engraved laminated plastic, black with white letters.

All control switches, push buttons, fuses, shorting type terminal blocks, and other devices requiring Purchaser interface shall be mounted at a height and location to be easily accessible. Such devices shall be located less than 1500 mm (5 feet) but more than 600 mm (2 feet) above the top of foundation.

16899.2.3 Operating Mechanism

The operating mechanism shall consist of a pneumatic, hydraulic, or spring charged stored energy mechanism. The operating mechanism shall include all auxiliary devices and other accessories for the operating mechanism furnished. The mechanism, regardless of the operating medium utilized, shall be electrically trip-free and shall include antipump auxiliary relays and devices.

The operating mechanism shall include a mechanical position indicator. The indicator shall provide a positive indication of the breaker position by direct mechanical coupling to the operating rod. The indicator shall consist of a suitable sign utilizing green with the word "OPEN" when in the open position, and red with the word "CLOSED" when in the closed position.

The operating mechanism shall include dual, low energy type trip coils. Each coil shall have an operating current less than 10 amperes. The trip coils shall be electrically, mechanically, and magnetically independent. The trip coils shall be located such that heat or fire damage to one trip coil shall not preclude the proper operation of the other trip coil. The trip coils shall be suitable for parallel trip coil operation. Loss of dc voltage to one trip coil shall not impair the operation of the other trip coil or the breaker close mechanism. The trip coils shall be wired to individual terminals to allow independent activation and testing.

The pneumatic or hydraulic operating mechanism shall include a pressure gauge and pressure switch with two alarm contacts that close to alarm low air or oil/nitrogen gas pressure. A low-pressure cutout switch (with two alarm contacts) shall be provided to prevent initiating a close signal should the operating pressure be below the minimum required for a complete close-open operation. The low-pressure cutout device shall not prevent a complete close-open operation should pressure drop after the close-open operation is initiated.

The stored energy operating mechanism shall operate according to the duty cycle specified on the Circuit Breaker Specification and Data Sheets without auxiliary power available. Each operating mechanism shall store sufficient energy for four (4) close-open operations without the need for running pumps, compressors, or spring charging motors. If this requirement cannot be met, the breaker shall include an automatic throwover scheme to alternately supply the mechanism motor from the Purchaser's ac (primary) and dc (secondary) station service systems should normal ac auxiliary power be lost. In such case, the requirement for emergency dc control power shall be clearly stated in the Supplier's Technical Data section as well as the duty cycle available without auxiliary power.

The stored energy mechanism recharging time to full operating pressure or condition from a completely discharged condition shall not exceed 30 minutes.

Each operating mechanism shall include spare auxiliary switch contacts for use by the Purchaser as specified on the Circuit Breaker Specification and Data Sheets. The spare auxiliary switch contacts shall be mechanically linked to the mechanism operating rod.

Each breaker close control scheme shall include a field adjustable 0.1 to 1 second time delay pickup close relay, factory preset to provide a 20 cycle reclose time (including breaker close time) after energization of the close circuit as specified on the Circuit Breaker Specification and Data Sheets.

16899.2.4 Auxiliary Power Supply

The Purchaser will furnish one auxiliary power supply to each circuit breaker at the voltage specified on the Circuit Breaker Specification and Data Sheets. If the motors or other auxiliary equipment are designed to operate at a different voltage from the specified auxiliary power supply, the Supplier shall furnish all equipment required to transform the voltage of auxiliary power to the design voltage of the equipment furnished. The Supplier shall provide suitable branch circuit protection.

16899.2.5 Auxiliary Power and Control Power Disconnects

Two power supply disconnects and four knife switches per breaker shall be provided. The close circuit and auxiliary power supply shall be fed from individual disconnects. One knife switch shall be wired in series with each of the disconnects feeding the auxiliary power supply and close coil. The two remaining knife switches shall feed trip coils one and two. The type of disconnect device (molded case circuit breaker or fuse blocks) shall be as specified on the Circuit Breaker Specification and Data Sheets.

16899.2.6 SF₆ Gas System

Temperature compensated pressure switches or gas density switches shall be provided to monitor the SF₆ gas density.

A drop in SF₆ gas density shall initiate a low SF₆ gas density alarm. A further drop in density shall initiate a trip or block any further breaker operation as specified on the Circuit Breaker Specification and Data Sheets.

The breaker shall be furnished with sufficient SF₆ gas to fill, test, and energize each breaker. The SF₆ gas shall be free of moisture and impurities. SF₆/nitrogen gas mixtures shall not be supplied.

The SF₆ to air seals and gaskets shall prevent SF₆ gas leakage in excess of 1 percent per year of gas weight, through the duration of the guarantee period. Corrosive arc products due to moisture infiltration shall be prevented to the maximum extent possible through the use of desiccant moisture absorbing chambers and an arc product filter.

16899.2.7 Arc Containment Chamber

The arc containment chamber shall be designed to prevent mechanical failure and withstand pressure buildup if the breaker fails to interrupt full rated fault current. The use of a pressure relief device is acceptable and shall be so stated in the Supplier's Technical Data section. If rupture discs are provided, the disc shall be oriented in a manner so as not to collect water/snow/ice and shall be physically guarded against direct strikes from objects such as hailstones.

16899.2.8 Monitoring and Control System

The circuit breaker shall be furnished with an alarm and control scheme which monitors the pneumatic or hydraulic operating system and the SF₆ gas system (as applicable). The alarm and control scheme shall be wired into each separate trip coil circuit and the close coil circuit.

16899.2.9 Space Heaters

Each operating mechanism and control enclosure shall be provided with space heaters to prevent condensation of moisture within the enclosure. Space heater capacity shall be as required to maintain the enclosure internal temperature above the dew point. The heaters shall be spaced away and thermally insulated from any devices or painted surfaces.

Space heaters shall be sized to provide adequate heating when energized at the applied voltage indicated on the Specification and Data Sheets. The Contractor shall provide all space heater wiring integral to the breaker and suitable branch circuit protection.

One space heater shall be controlled by an adjustable thermostat, factory set to close (ON) at 29° C (85° F) and open (OFF) at 35° C (95° F). One space heater shall remain continuously on.

16899.2.10 Current Transformers

Current transformers shall be provided as specified in accordance with NEMA SG 4 - Section 3.

Current transformers shall be bushing type with fully distributed windings for relaying service. They shall be five lead multiratio type unless specified otherwise on the Circuit Breaker Specification and Data Sheets.

All secondary leads of each current transformer, including all taps of each transformer, shall be wired to shorting type terminal blocks located in the circuit breaker control cabinet. Terminal block types shall be as specified on the Circuit Breaker Specification and Data Sheets. Each set of secondary winding taps shall terminate on a 6-pole shorting block, with the sixth pole permanently connected to the shorting bar and to ground.

16899.2.11 Assembly and Configuration

The circuit breakers shall be factory assembled into integral shipping sections as complete as possible to minimize assembly requirements at the site. A structural steel frame, common to all breaker components shall be furnished. The frame furnished shall maintain a 2590 mm (8'-6") minimum height from bottom of porcelain to top of foundation.

The assembly shall be complete, including bushings, if shipping clearances will permit.

16899.2.12 Bushings

All bushings shall be rated in accordance with ANSI and NEMA standards and as specified on the Circuit Breaker Specification and Data Sheets. All bushings shall be SF₆ gas filled porcelain or composite material as specified on the Circuit Breaker Specification and Data Sheets.

Any damage to the bushings, such as chips or cracks, shall result in the damaged item being replaced, not repaired.

16899.2.13 Auxiliary Power and Control Circuits

Breaker auxiliary power, control, and alarm circuits shall be provided with terminal blocks for connection to external circuits. The terminal blocks shall have circuit identification and shall be located in the control cabinet to provide external circuit connections from a common raceway entrance. Terminal block types shall be as specified on the Circuit Breaker Specification and Data Sheets.

16899.2.14 Transient Recovery Voltage (TRV) Capacitors

TRV capacitors shall be furnished, as required, to meet the breaker short circuit and short time ratings for 90 percent short line faults as specified on the Circuit Breaker Specification and Data Sheets. At the Purchaser's option, the TRV capacitors may be removed from the Supplier's scope of supply, if capacitive coupling voltage transformers (CCVT) will be installed within the required distance from the circuit breaker and they have sufficient capacitance to allow the TRV capacitors to be removed. The Supplier shall indicate in the Proposal Data section, the required TRV capacitance and its location and required distance from the circuit breaker.

16899.3 Spare Parts

The Proposal shall include a list of spare parts included in the lump sum prices for each circuit breaker and an itemized list of spare parts that are recommended, but not included for each circuit breaker. The second list shall indicate the quantity recommended per circuit breaker, and the unit price each.

One complete set of spare gaskets and O-rings shall be furnished for each voltage class. The set shall contain all gaskets and O-rings needed for one complete breaker in each voltage class including operating mechanism seals and SF₆ gas-to-air seals. The gaskets shall be shipped in heavily constructed wooden boxes provided with hinged covers and padlock hasps. The boxes shall be designed as permanent storage enclosures. The gaskets shall be protected from damage due to moisture and dirt accumulation during an extended storage period by use of special coatings, airtight bags, etc.

The gaskets shall be sealed for long-term storage.

Two spare trip coils and one spare close coil shall be furnished for each voltage class. One spare spring charging motor shall be furnished for each voltage class. The coils and motor shall be shipped in heavily constructed wooden boxes provided with hinged covers and padlock hasps. The boxes shall be designed as permanent storage enclosures. The coils and motor shall be protected from damage due to moisture and dirt accumulation during an extended storage period by use of special coatings, airtight bags, etc.

16899.4 Wiring Diagrams

Schematic, connection, and interconnection wiring diagrams furnished by the Supplier shall be in accordance with Section 1C and IEEE C37.11 and shall be on a per circuit breaker basis.

16899.5 Painting

Except for electrical connection surfaces, all exterior circuit breaker metallic steel surfaces, support steel, raceway, etc., shall be painted or galvanized. Painting shall be in accordance with the requirements in Supplemental Specification Section Q301.

16899.6 Factory Tests

Each circuit breaker shall undergo the production tests as listed and described in ANSI C37.09. The Owner may require that each circuit breaker be fully assembled at the factory, and remain fully assembled during production testing. Each bidder shall state the additional cost, if any, of fully assembling each circuit breaker in the space provided in the proposal pricing pages.

Certified production test reports for each circuit breaker furnished shall be submitted to the Engineer within 10 days after completion of the tests. Testing shall include accuracy tests of all current transformers in accordance with ANSI C57.13.

In addition, representative design test reports for the circuit breakers proposed shall be furnished. Design tests shall have been conducted for the specific rated circuit breakers proposed.

16899.7 Preparation of Breakers for Shipment

Circuit breaker components shall be clean, dry, and sealed when shipped from the factory. Each component not shipped with SF₆ gas shall contain a packaged moisture absorbing chemical as required to keep it moisture free during shipment. Tanks, interrupters, support insulators, or other SF₆ containers which are found to contain moisture when received at the jobsite shall be dried, and moisture damage shall be repaired at the Supplier's expense.

Complete instructions outlining the Supplier's recommended procedures for inspection upon receipt at the construction site, moisture free maintenance during storage, and preparation for SF₆ filling shall accompany each breaker. These instructions shall be shipped inside the breaker control cabinet.

Supplier shall test each pole/pole section for moisture content prior to shipment and shall record and attach label to each tested item.

16899.8 HV SF₆ Circuit Breaker Specification and Data Sheets

HV SF₆ circuit breakers shall comply with the Technical Specifications and shall be furnished in accordance with the following requirements.

HV SF6 Circuit Breaker Specification and Data Sheets

General Requirements	
Location	E 7 th St and WEC Distribution Substation
Quantity	2
Each circuit breaker shall be designed and constructed for operation on a 3-phase, 60 hertz, solidly grounded system, at an ambient temperature range from -35° C to +40° C at an altitude below 1,000 meters (3,300 feet).	
Ratings	
Rated maximum voltage, kV rms	145
Type:	Dead tank
Rated voltage range factor, K:	1.0
Rated continuous current, A rms	3,000
Duty cycle	O-0.3sec-CO, 3 minutes, CO
Rated short-circuit and short-time current, kA rms	40
Rated closing and latching current, kA peak	104
Rated interrupting time, milliseconds	50
Maximum permissible tripping delay, Y, second (s)	1
Minimum reclosing time, seconds	0.3
Adjustable reclosing range, seconds	0.1-1.0
Tripping logic for low SF ₆ gas operating pressure	Block trip and block close
Bushing data (dead-tank breakers) in accordance with IEEE C57.19.01	
Type:	Porcelain
Basic impulse level, kV	650
Minimum creepage distance, mm (inches)	2362 (92.9)
Color	ANSI 70 gray
Enclosure Type	NEMA 3R
Nominal station service power supply voltages:	
Auxiliary power	120/240 Volts, 60 Hertz
	1 phase, 3 wire
Breaker closing, volts dc	125
Breaker tripping, volts dc	125
Control power disconnects	Molded case circuit breakers
Space heaters	
Voltage rating, volts ac	240
Applied voltage, volts ac	120

Current transformer data (dead-tank breakers)	Location	Ampere, Ratio	Quantity each Bushing	Total	Accuracy Class	Thermal Rating
	1X, 3X, 5X	2000:5 MR	1	3	C800	2.0
	1Y, 3Y, 5Y	2000:5 MR	1	3	C800	2.0
	1Z, 3Z, 5Z	2000:5 MR	1	3	C800	2.0
	2X, 4X, 6X	2000:5 MR	1	3	C800	2.0
	2Y, 4Y, 6Y	2000:5 MR	1	3	C800	2.0
	2Z, 4Z, 6Z	2000:5 MR	1	3	C800	2.0
	Basic impulse insulation levels, insulator creep, color, and dielectric test shall match the power circuit breaker requirements.					
Loading Capabilities						
Wind, mph		See D100 supplemental section				
Ice, inch		See D100 supplemental section				
Seismic withstand, g		See D100 supplemental section				
		See D100 supplemental section				
Terminal (static force), N		1,250, horizontal longitudinal				
		750, horizontal transverse				
		1,000, vertical				
Accessories						
Standard accessories shall be provided with each breaker. Accessories shall include, but not necessarily be limited to, the following as indicated.						
Relay and operating panel shall be included in the operating cabinet or in a separate weatherproof cabinet on each breaker.		Yes				
Mounting provisions and wiring only shall be provided to allow for the future addition of a Kirk key interlock with auxiliary switch. The future switch shall be wired to open the close control circuit.		Yes				
Kirk key interlock		No				
An auxiliary switch with 14 "a" and 10 "b" contact in addition to those required for control of breaker mechanism. All contacts shall be wired to terminal blocks. Contact surfaces shall be silver-plated. Contacts shall be rated to break 6 amperes at 135 volts dc.		Yes				
Four spare contacts from each Breaker 52X close relay		Yes				
Cutoff and latch checking switches		Yes				
One local-remote control switch wired for local-remote operation		Yes				

One trip push button (momentary) wired for local breaker test operation. One push button for each trip coil.	Yes
One close push button (momentary) wired for local breaker test operation.	Yes
Pressure switch per operating mechanism for annunciation of low operating pressure if pneumatically or hydraulically operated breaker is furnished	Yes
Pressure switch for annunciation of low operating pressure cutoff if pneumatically or hydraulically operated breaker is furnished	Yes
One maintenance closing and opening device shall be furnished for use with all breakers	Yes
Position indicator, red and green lamps operated by breaker auxiliary contacts, visible from the outside of the control cabinet	Yes
Loss of voltage alarm relay on each auxiliary power and control power feed to the breaker, one for the auxiliary power, one for close control power, and one for each of the trip coil circuits	Yes
Pole-disagreement relaying scheme.	No
Operation counter to count trip operations per operating mechanism	Yes
One elapsed time meter for each of the stored energy mechanism motors	No
Provisions for field installation of travel-time recorders on each pole	Yes
One 120 volt ac lamp (LED-type with bulb-guard) with door operated switch in each control or mechanism cabinet	Yes
One 120 volt single-phase receptacle, Hubbell Cat. No. 5251, and one 240 volt, 60 ampere, single-phase receptacle, NEMA Type 14 60R, shall be installed in each control and mechanism cabinet, and shall be accessible from outside the cabinet.	Yes
A suitable nameplate showing all ratios, accuracy classes, and thermal rating of the current transformers shall be mounted either on the circuit breaker frame, inside the control cabinet, or inside the current transformer terminal cabinet.	Yes
Nameplates to identify switches, relays, and other auxiliary devices	Yes

One SF ₆ gas sampling valve per pole, located as close as possible to the main volume of gas for use in moisture testing	Yes
SF ₆ gas system pressure gauge	Yes
Density switch per pole for annunciation of low SF ₆ gas density cutoff	Yes
Temperature compensated pressure switch with three independent contacts for annunciation of low SF ₆ gas density cutoff	Yes
Bushing terminals, NEMA 4 hole spade type, tinned bronze or silver plated aluminum, both sides of terminal suitable for electrical connections	Yes
Two NEMA 2 hole grounding pads with tinned bronze, bolted type terminals for attachment to the Purchaser's 1/0 AWG to 300 kcmil stranded copper ground cables. The grounding pads shall be on diagonally opposite locations on the frame.	Yes
External emergency manual trip push button, pull to trip, push to reset	Yes
SF ₆ gas fill hose and regulator	Yes

Proposal Data

Manufacturer	
Catalog No. and Type	
Live or dead tank	
Ratings and capabilities	
Maximum voltage, kV rms	
Low frequency withstand, kV rms	
Full wave impulse withstand, kV peak	
Complete breaker	
Interrupters	
Preinsertion resistors	
Chopped wave impulse withstand, kV crest	
2 microseconds minimum time to sparkover	
3 microseconds minimum time to sparkover	
Switching impulse withstand, kV crest	
Terminal to ground, breaker closed	
Terminal to terminal, breaker open	
Continuous current, amperes	
Available overcurrent, amperes	
1/2 hour	
1 hour	
2 hours	
4 hours	
Short-circuit current at maximum voltage, amperes	
Maximum symmetrical interrupting, amperes	
Short-time (3 second) current, amperes	
Closing and latching current, amperes	
Permissible tripping delay, seconds	
Line charging switching, amperes	
Rated operating times (60 hertz basis)	
Interrupting, cycles	

For 0 to 25 percent of interrupting capability, cycles	
For 25 to 100 percent of interrupting capability, cycles	
Opening from trip coil energization to parting of contacts, cycles	
Closing time, cycles	
Adjustable reclosing range, cycles	
Maximum time between first and last poles to close, milliseconds	
SF ₆ gas system	
Normal SF ₆ gas operating pressure, bar	
Interrupter heads	
Support columns	
Minimum SF ₆ gas operating pressure for full interrupting capability, bar	
Interrupter heads or tanks	
Support columns	
Minimum SF ₆ gas operating pressure for load current interrupting capability, bar	
Interrupter heads or tanks	
Support columns	
Operating mechanism	
Type	
Rated duty cycle	
Number of close-open operations that can be performed, starting with a fully charged operating mechanism, with no auxiliary electric power available	
If spring charged mechanisms are proposed, dc power requirement to recharge mechanism, at 125 volts dc, amperes	
Time required to fully recharge operating mechanism to normal operating pressure or condition	
After one close-open operation	
From zero operating pressure	

After one close-open operation and loss of auxiliary power (spring charged only)		
Maximum line to ground voltage breaker can withstand with one atmosphere SF ₆ gas pressure, kV		
Minimum external creepage distance, mm		
Number of interrupter support columns per pole		
Number of interrupting gaps per pole		
Trip and close coil current, amperes	Trip	Close
One coil		
Three coils wired in parallel		
Optional preinsertion resistorohmic value range, per phase		
Time preinsertion resistor is in circuit, milliseconds		
Grading capacitor capacitance per pole, picofarads		
Current transformers (live tank only)		
Manufacturer		
Catalog No. and Type		
Estimated man-days needed to fully assemble one 3-pole circuit breaker with current transformers		
Will circuit breakers be fully assembled at factory for production tests? (Include any additional cost.)		
List production tests to be performed.		
Describe manner in which breakers will be shipped (by rail, truck) and extent of field assembly required.		

List of spare parts and maintenance tools furnished with each circuit breaker and included in proposal pricing pages	
Dimensions, mm	
Length from line terminal to line terminal (including current transformers)	
Pole spacing	
Height from line terminal to top of foundation	
Overall height above foundation	
Height from lowest grounded point to top of foundation	
Allowable forces on terminals, kN	
Horizontal (in-line)	
Horizontal (lateral)	
Vertical	
Weight, including support structures, kg	
One complete pole	
One current transformer (live tank only)	
Is a pressure relief device to be installed in the interrupter head or tank? If yes, state the pressure at which the device will operate.	
State manufacturer and Catalog No. of high voltage test terminals to be furnished.	

19000 - Quality System Requirements

If the Supplier believes that an inconsistency exists between this section and other portions of the contract documents, the Supplier shall immediately notify Purchaser for resolution.

19000.1 General Quality System Requirements

19000.1.1 Quality System

The Supplier shall demonstrate a documented Quality Management System (QMS) by providing supporting QMS documentation as defined in the Schedule of Submittals. The Supplier's quality system shall comply with ISO 9001 Quality Management Systems and/or ASME, when applicable by contract scope, and the codes and standards listed throughout this document.

The Supplier's QMS shall ensure that all equipment, assemblies, services, and commodities supplied are in conformance with the contract drawings and specifications.

The Supplier's QMS shall provide assurance that design, procurement, materials, manufacturing processes, inspection and testing, packaging, shipping, storage, and related services comply with the requirements of the contract documents. The Supplier's QMS shall have a defined process for reporting, segregation, evaluation, disposition, and closure of nonconforming product. This QMS shall be available to the Purchaser for review and/or audit at all of Supplier's locations where work is being performed subject to these contract documents.

19000.1.2 Subtier Suppliers

The Supplier shall obtain the Purchaser's approval in writing prior to using subtier suppliers for manufacturing or engineering activities.

All applicable requirements of the contract documents (i.e., technical, quality, and administrative) shall be passed on to the applicable organizations within the Supplier and subtier supplier's companies. The Supplier shall ensure that subtier suppliers have the capabilities to fulfill contract document requirements. Suppliers shall monitor subtier suppliers' quality of work and shall indicate the strategy on their inspection and test plan.

Suppliers shall submit required procedures, drawings, quality management documentation, and/or other submittals when required in the Schedule of Submittals for approval and/or information of subtier supplier's capabilities, processes, or in-process work involving the engineering, fabricating, and manufacturing of equipment and commodities for the Purchaser.

Subtier supplier qualification and monitoring are the responsibility of the Supplier. Purchaser has the authority to perform quality audits and inspections and monitor and/or review subtier supplier processes and facilities, at all locations where work is being performed subject to these contract documents.

19000.1.3 Inspection and Test Plan

In accordance with the Schedule of Submittals, a detailed inspection and test plan (i.e., a Quality Control Plan, including shop and field inspection and test plans) for the work/equipment shall be submitted to the Purchaser as specified in the contract documents prior to starting fabrication, site installation/erection or commissioning activities as applicable by scope. The Purchaser will designate any additional test witness points or other inspection points required during review of the Supplier's submitted detailed shop and field inspection and test plan.

The inspection and test plan (ITP) shall identify the inspection and testing points including the acceptance criteria for major components of the work, relevant procedures, specifications, codes, the facility location, and inspection target dates for each inspection or test. The ITP shall be complete when first submitted and shall be maintained current throughout the life of the contract. When the ITP is revised, the Supplier shall submit a revised ITP for review. A monthly inspection target date schedule shall be provided to the Purchaser. The ITP shall also include the Supplier's strategy for inspecting subtier supplier's work,

including inspection by the Supplier at his subtier supplier's facilities. The Supplier shall inspect the work of subtier suppliers to the extent necessary to ensure that proper materials and equipment are furnished and that fabrication, assembly and erection are accomplished in accordance with the contract documents. Commercial off-the-shelf items are exempted from these requirements.

The Supplier shall keep the Purchaser informed of the progress of the work. When shop inspection and test points have been designated by the Purchaser as witness, in-process and/or hold points, the Supplier shall notify the Purchaser at least 14 calendar days in advance of the appropriate times for inspections and testing.

- A pre-fabrication inspection is a point prior to fabrication and inspection activities where the Purchaser will meet with the Supplier at the primary location of fabrication to review fabrication and inspection related activities that will take place. Discussion typically include, but are not limited to; materials, codes, standards, sub-suppliers, welding processes, test facilities and methods, and shop loading. Inspection target is approximately 2 weeks prior to the start of fabrication.
- A witness inspection point (if API – Observe) is a step in manufacturing where the Supplier is obligated to notify the Purchaser at least 14 calendar days in advance of the performed operation so that it may be witnessed unless specified otherwise in the Schedule of Submittals. If the Supplier properly notified the Purchaser but the Purchaser was not present at the time and date specified by the Supplier, the Supplier may proceed.
- A hold inspection point (If API - Witness) is a designated stopping place during or following a specific activity at which the Purchaser's inspection or witness is required before further work can be performed. The Supplier may not proceed beyond the hold point without inspection or witness by the Purchaser, unless prior written authorization is obtained from the Purchaser.
- An in-process inspection point (if API – Observe) is a Purchaser inspection that occurs during the manufacture of the Supplier's goods. If the Supplier properly notified the Purchaser but the Purchaser was not present at the time and date specified by the Supplier, the Supplier may proceed.
- A preshipment inspection point is a Purchaser inspection that may include a check of shipping blinds, packaging, loading and/or verification of purges, dimensional check, coatings protection and/or document review (shop quality, shipping documents). Preshipment inspections can be witness or hold points.
- A final inspection point is a Purchaser inspection that may include dimensional check, weld end preps, cleanliness, coatings/coatings protection, and/or shop quality document review. Final inspections can be witness or hold points.

The Purchaser may waive the witness of tests; waivers for hold points shall be in writing. Waivers in no way absolve or relieve the Supplier of complying with contractual requirements.

If the Supplier has notified the Purchaser defining the specific test date and time and the Supplier is not ready to conduct the test at the stated date and time, the Supplier shall be accountable for all additional expenses incurred by the Purchaser.

The following table lists the minimum surveillance activities that the Purchaser will perform:

Surveillance Type	Task

Note: Article 19000.1.3 above shall include Supplier contact information, contract #, shop order #, related tag #, inspection date, start time, shop location, and PPE or other specific requirements.

The Purchaser may make additions and deletions of surveillance activities based on, but not limited to, the following:

- Supplier ITP.
- Supplier performance.
- Purchaser requests.
- Equipment assessment.
- Design reviews.

19000.1.3.1 Not Used

19000.1.4 Inspections by Purchaser

The Purchaser may elect to perform assessments, quality audits, or witness testing at any time during the manufacturing process. The Purchaser may designate an authorized agent for assessments, witness testing, or quality audits. Authorized agent may be an employee of the Purchaser or an outside agency. When an outside agency is designated as an authorized agent for the Purchaser, such designation will be in writing with a copy provided to the Supplier. When the term "Purchaser's representative" is used, it may mean the Purchaser or the authorized agent.

The following requirements shall apply for Purchaser's inspection at the Supplier's mill, factory, yard, warehouse, or subtier supplier's facilities.

19000.1.4.1 Access. The Purchaser's representative shall have the right to access the Supplier's and subtier supplier's work and related documents during the manufacturing process without delaying the schedule. The Supplier shall provide, without cost, reasonable facilities including tools, personnel, and instruments for demonstrating acceptability of the work.

19000.1.4.2 Surveillance Activities. In accordance with the contract documents, designated hold points for witnessing mill and/or factory tests shall be performed in the presence of the Purchaser's representative unless waived in writing by the Purchaser's representative. The Supplier shall bear all costs for such tests, except the compensation and expense of the Purchaser's representative.

19000.1.4.3 Control of Special Processes. It is the Supplier's responsibility to ensure that qualified personnel are employed to perform special processes such as welding, nondestructive examination (NDE), coating, painting, etc. If special processes are conducted by unqualified employees, the Purchaser has the right to validate and test the product at Supplier's expense and/or reject the product. The Supplier shall be able to demonstrate the qualifications of personnel in writing.

19000.1.4.4 Nonconformance. Upon identification of a noncompliance of the contract documents and/or applicable codes, the Supplier shall document the noncompliant issue in accordance to Supplier's nonconformance procedure. For noncompliance issues where the nonconforming disposition is characterized as "Use-As-Is" or "Repair" as defined in Article 19000.1.4.4.1, the Supplier shall submit the nonconformance report to the Purchaser for review and approval. During witness and hold point activities, if the Purchaser's representative identifies a noncompliance issue, the Supplier shall document the noncompliance issue and provide a copy of the documentation to the Purchaser's representative. If the Supplier disagrees and does not document the noncompliance, the Purchaser's representative shall

issue a nonconformance report to the Supplier for disposition and action. The Supplier shall correct, in a timely manner, all deficiencies identified in the nonconformance report.

19000.1.4.4.1 Nonconformance Disposition Definitions.

Rework - Process by which a nonconforming item is made to conform to a prior specified requirement by completion, correction, reassembling, or other means.

Repair - Process of restoring a nonconforming item to such a condition that the capability of an item to function reliably and safely is unimpaired, even though that item still may not conform to the original requirement.

Use As Is - A disposition which may be used for a nonconforming item when it can be established that the discrepancy will not adversely affect the functional requirements of its intended use (including performance, maintainability, fit, and safety).

Reject/Scrap - Action taken to eliminate a nonconforming item from its specified use and either reject the item or have it scrapped, as appropriate.

19000.1.4.5 Rejection. If any items or articles are identified that do not meet the requirements of the contract documents, the lot, or any unacceptable portion thereof, may be rejected. Before offering specified materials or equipment for shipment, the Supplier shall inspect the material and equipment and eliminate any items that are defective or do not meet the requirements of the contract documents. The fact that equipment or materials have been previously inspected, tested, and accepted does not relieve the Supplier of responsibility in the case of later discovery of flaws or defects.

19000.1.4.6 Receipt Inspection. Materials or equipment purchased under these contract documents may be inspected at the specified receiving points and will either be accepted or rejected. Receipt inspection may include testing to determine compliance with the contract documents. Initial receipt inspection acceptance tests will be performed. Items found to be defective may be returned to the Supplier for correction at the Supplier's expense, including shipping cost, or the cost to correct and inspect the item will be charged to the Supplier.

19000.1.4.7 Deviation. Any technical deviations sought by the Supplier to the contract documents shall require written approval from Purchaser prior to the deviation or change being implemented.

19000.1.4.8 Repair. The Supplier shall submit a repair procedure to Purchaser for all repairs as determined by contract, code, or repair dispositions definition in Article 19000.1.4.4.1. The Supplier shall obtain Purchaser approval of the repair procedure prior to starting the repair.

19000.1.5 Code and Non-Code Inspection

19000.1.5.1 Code Inspection. Code inspection includes functions performed by an authorized inspector, his delegates, government agencies, or other independent third-party inspectors to verify compliance with the applicable codes, government regulations and, when specified, the engineering design.

19000.1.5.1.1 Determination of code requirements. All equipment or materials purchased or specified in accordance with a code or government regulation shall be inspected as required by that code or regulation.

The codes, laws, or regulations of record applicable to a project, together with any additional requirements, shall be those referenced in the Project Design Data.

19000.1.5.1.2 Personnel Qualifications. Inspections and examinations required by all codes, laws, or government regulations applicable to the project shall be made by inspectors and other personnel who are officially qualified in accordance with those applicable codes, laws, or government regulations.

Welders, nondestructive examination personnel, and other construction specialists required to be tested or certified by the applicable code, law or government regulation shall be verified as having satisfied these requirements.

In no case shall the Purchaser inspector or inspection representative be construed as the authorized code or independent third-party inspector.

19000.1.5.2 Non-Code Inspection. Non-code inspection includes functions performed by Purchaser or its authorized agent to:

- Review, monitor, and conduct surveillance of the Purchaser Quality Control Program and its implementation.
- Perform quality control functions required by Purchaser standards or specifications that are in addition to code requirements.

The inspection of a Supplier facility by Purchaser or its inspection representative may include, but is not limited to inspections identified in table above, the complete or partial performance of the following:

1. Verification of the use of qualified welders and qualified welding procedures.
2. Checks on materials, dimensions, and finishes.
3. Review/audit of nondestructive examinations, including alloy verification if required, including ensuring that personnel are qualified to perform these examinations.
4. Witnessing of pressure tests and equipment mechanical and performance tests.
5. Review of documentation.
6. Audit of the Supplier's quality control program, including document control and disposition of nonconforming work. Audits shall take place at the point of fabrication.

The extent of inspection to be performed on materials and equipment supplied by each Supplier shall be determined by considering the Supplier's quality control program and previous experience of Purchaser with the Supplier.

Purchaser or a designated representative of Purchaser may perform inspections in addition to or exceeding code requirements in order to meet quality standards specified by Purchaser or the Client.

19000.1.5.3 Owner Participation. If applicable, the Owner's inspector shall be given full access to Supplier facilities for inspection. The Purchaser inspector shall act as the official spokesman in all discussions with the Supplier. Supplier shall refer any conflict between Purchaser Order requirements and the Client inspector's requirements to Purchaser for resolution.

In the event the Purchaser inspector is not present when the Owner's inspector encounters an unacceptable condition which may cause a delay in shipment, the Owner's inspector shall immediately send complete information regarding the condition, proposed corrective measures, and estimated delay through the established channels to Purchaser for Purchaser action.

19000.1.5.4 Code or Third-Party Inspection. Unless the governing code or authority requires the Owner to assume the responsibility for the authorized code inspection, the Purchaser shall make the

necessary arrangement with the Supplier for all required code or third-party inspections, and shall collect the Authorized Inspectors Reports and the Manufacturer's Data Reports.

D100 Site Meteorological and Seismic Data (Revised by Project: 12Nov21)

Work shall be designed according to the following building code and site conditions:

General Design Data:	
Building Code	International Building Code (IBC) 2018
Risk Category	I
Site Elevation (Mean Sea Level), ft (m)	1925 ft
Rainfall – 24 Hour, 25 Year event, inches (mm)	5.08 inches
Frost Depth, inches (mm)	42 inches
Wind Design Data:	
Basic Wind Speed, V, Nominal 3 second gust wind speed at 33 ft (10 m) above ground for Exposure C category, mph (m/s)	106 mph
Exposure Category	C
Topographic Factor, K _{zt}	1.0
Directionality Factor, K _d	0.85
Velocity Pressure Exposure Factor, K _z	1.0
Snow Design Data:	
Ground Snow Load, P _g , lb/ft ² (kN/m ²)	25 lb/ft ²
Importance Factor (Snow Loads), I	0.80
Snow Exposure Factor, C _e	0.90
Ice Design Data:	
Nominal Ice Thickness, t, Due to freezing rain at a height of 33 ft (10 m), inches (mm)	1 inch
Concurrent Wind Speed, V _c , mph (m/s)	50 mph
Importance Factor (Ice Loads – Ice Thickness), I _i	0.80
Importance Factor (Ice Loads – Concurrent Wind), I _w	1.00
Seismic Design Data:	
0.2 Second Maximum Considered Earthquake (MCE _R) Spectral Response Acceleration, S _s	0.077
One Second Maximum Considered Earthquake (MCE _R) Spectral Response Acceleration, S ₁	0.041
Site Class	D
Seismic Design Category	A
Importance Factor (Seismic Loads), I _e	1.00

Q301 Manufacturer's Standard Coating (Revised by Project: N/A)

Unless otherwise specified, the manufacturer's standard coating systems shall be applied in the shop to ferrous metal surfaces of equipment and materials. The coating systems shall provide resistance to corrosion caused by weather and industrial environments. Manufacturer's standard coating systems shall be specified to provide medium (M) durability in accordance with ISO 12944, Paints and Varnishes – Corrosion Protection of Steel Structures by Protective Paint Systems, for the intended service environment. Surfaces that will be inaccessible after assembly shall be protected for the life of the equipment.

Coating material and application shall conform to the regulations of the air quality management agency having jurisdiction. Materials shall be formulated to contain less than 0.06 percent lead or chromium in the dried film.

Surfaces shall be cleaned, prepared, and coated in accordance with the coating manufacturer's instructions and specified codes. Surfaces to be painted shall be prepared, as necessary, to provide a smooth, uniform base for painting.

Coating films that show defects such as sags, checks, blisters, teardrops, and fat edges will not be accepted. Any coated surface that contains any of the previously mentioned defects shall be repaired or, if necessary, entirely removed from the member or unit involved and the surface recoated.

All internal surfaces that will be exposed to steam or treated feedwater shall be blasted with aluminum oxide (pink or white grade), cut steel wire (SAE J441), steel grit, or steel shot. The blasting media used shall contain no more than 1.2 percent complexed silica and 0 percent free silica.

Surfaces to be finish painted after installation shall be shop painted with one coat of the manufacturer's standard primer.

Touchup paint shall be provided for repair painting of at least 10 percent of the finish painted equipment surface. The touchup paint shall be the same type and color as the shop applied material. Application instructions shall be provided.

No coating shall be applied to surfaces within 3 inches (75 mm) of field welded connections.

Coating dry film thicknesses shall be measured using a magnetic or electronic thickness detector in accordance with Society for Protective Coatings (SSPC)-PA2. Additional coating shall be applied to all areas that show a deficiency in dry film thickness.

Q301.1 Control and Electrical Equipment

Control and electrical equipment, including panels, cabinets, switchgear, transformers, and motors, shall be finish painted. Exterior surfaces shall be the manufacturer's standard color unless specified otherwise. The interior portions of cabinets shall be painted a light reflecting color.

Q301.2 Mechanical Equipment

Mechanical equipment, including pumps, compressors, valves, valve operators, external piping surfaces, and other similar equipment, shall be cleaned, prepared, and primed. If mechanical equipment will operate at temperatures above 200° F (93° C) and will not be insulated, a high temperature coating system designed for the operating temperatures shall be applied.

Q301.3 Documentation

Shop drawings shall identify the shop applied coating systems. Data to be provided shall include the coating system manufacturer's name and product designation, the degree of surface preparation, dry film thickness, finish color, and Safety Data Sheets (SDSs). Final dry film thickness test results shall be submitted to Purchaser for verification.

Q400 General Equipment Requirements (Revised by Project: N/A)

Q400.1 Miscellaneous Materials and Services

Miscellaneous materials and services not otherwise specifically called for shall be furnished by the Supplier in accordance with the following, as applicable:

All nuts, bolts, gaskets, special fasteners, backing rings, etc., between components and equipment furnished under these specifications.

All piping integral to or between any equipment furnished under these specifications, except as otherwise specified.

All necessary connections for the Purchaser's piping and instruments.

All necessary instrument, power, and control wiring and raceways integral to any equipment furnished under these specifications. This shall include terminal blocks and internal wiring to these terminal blocks for equipment requiring external connection.

Coupling guards for all exposed shafts and couplings.

Leveling blocks, soleplates, thrust blocks, matching blocks, and shims.

Field office furnishings, supplies, telephone service, and equipment for the manufacturer's technical service representatives.

Erection drawings, prints, information, instructions, and other data for use by the Purchaser's erection contractor.

Detailed storage requirements and lubrication requirements (including frequencies) for use by the Purchaser's erection contractor.

All special tools or lifting beams.

Lifting eyes and lugs for offloading and setting equipment.

The use of all special tools required for erection of the equipment, exclusive of the maintenance tools furnished. Erection tools shall remain the property of the Supplier, and all shipping costs to and from the jobsite shall be at the Supplier's expense.

Q400.2 Fabrication Restrictions

Unless specifically provided otherwise in each case, all materials and equipment furnished for permanent installation in the work shall conform to applicable standard specifications and shall be new, unused, and undamaged.

Asbestos containing materials will not be allowed.

Flanges, fittings, and valves manufactured in the People's Republic of China shall meet following requirements.

Manufacturer's quality system shall be in accordance with ISO 9001 and the manufacturer shall hold a valid ISO 9001 certificate issued by the certified ISO 9000 certification organization.

Manufacturer shall hold a manufacturer's license issued by the China Special Equipment Inspection & Research Center (CSEI) under General Administration of Quality

Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ) or an acceptable equivalent in accordance with Purchaser's Engineer.

Products shall have markings as required by ASME B16.1, ASME B16.5, ASME B16.9, ASME B16.10, ASME B16.11, ASME B16.25, or ASME B16.34 as applicable.

The final quality certificate and quality inspection documents shall bear the official stamp of CSEI or AQSIQ or its branches.

Individual parts shall be manufactured to standard sizes and gauges so that repair parts furnished at any time can be installed in the field. Like parts of duplicate units shall be interchangeable.

Q400.3 Nameplates and Tags

Nameplates and tags shall be furnished and shop installed for all equipment with a Purchaser's identification number based upon the guidelines provided herein. The Purchaser will annotate the Supplier's drawings on initial submittals of technical drawings of the equipment. The information will include the nameplate description, tag number, physical size, and lettering height. The type of nameplate will vary because of size constraints, equipment location and/or orientation, or the environment in which the equipment is located.

In general, nameplates shall be furnished for major equipment, including all operator interfaces, control and electrical panels, cabinets, and instrument racks. The nameplates shall be beveled, laminated white phenolic plastic engraving stock with black core or beveled, two-ply vinyl white with reverse engraved black fill. These nameplates shall be 2 inches by 8 inches (50 mm by 200 mm) with three lines of text. The top two lines of text shall be a brief description of the equipment. These lines of text shall be 3/8 inch (10 mm) high. The bottom line of text shall be the Purchaser's identification number of the equipment. This line of text shall be 3/16 inch (5 mm) high. Nameplates that are to be mounted on equipment to be installed in nonair-conditioned areas shall be attached with stainless steel panhead screws, rivets, drive screws, or epoxy glue. Nameplates that are to be mounted on equipment to be installed in heated and air-conditioned areas shall be attached with high performance adhesive tape. Nameplates shall be 1/16 to 1/8 inch (2 mm to 4 mm) thick.

Stainless steel tags shall be furnished for field instrumentation, process valves, and other small devices that a plant operator is not likely to have any direct interface with, as directed by the Purchaser. These stainless steel tags shall be permanently attached to the equipment with stainless steel panhead screws, rivets, drive screws, or, with the Purchaser's acceptance, stainless steel wire. The size of these tags shall be a minimum of 1-1/4 inch by 2-1/2 inches (30 mm by 65 mm) 18 Ga thickness and include the Purchaser's identification number. Lettering shall be electro/laser etched, stamped, or engraved on a polished plate, with text at least 3/16 inch (5 mm) in height. Text shall be sized as large as possible within the size constraints of the tag.

Separate nameplates are not required for pressure indicators. They may be provided instead with nameplate information, as described above, permanently engraved on the faces. Face engraving text size and layout shall be readable without magnification.

Q400.4 Factory Assembly

Equipment shall be shipped completely factory assembled, except when the physical size, arrangement or configuration of the equipment, or shipping and handling limitations make the shipment of completely assembled equipment impracticable, in which case the equipment shall be assembled and shipped as stated in the Supplier's proposal. Any deviations after Purchase Order award could result in Supplier's performance of some assembly at the site or backcharges to the Supplier for others required to perform such assembly. When proposals are submitted without statements describing sectional shipments, it will be understood that no field assembly of the equipment will be required and the Supplier shall be responsible for all costs encountered in the field for assembly of sections, accessories, or appurtenances not listed in the Proposal as requiring field assembly.

When indicated in the Schedule of Submittals, the Supplier shall submit a Shipping Plan confirming and detailing the field assembly requirements as stated in the proposal.

All separately packaged accessory items and parts shall be shipped with the equipment. Containers for separately packaged items shall be marked so that they are identified with the main equipment. An itemized packing slip indicating what is in that container only shall be attached to the outside of each container used for packaging. A similar list shall be inside each container. A master packing slip covering all accessory items for a given piece of equipment which are shipped in separate containers shall be attached to one container.

Q400.5 Tools

The Supplier shall furnish and ship with each piece of equipment one set of all special tools required for dismantling, maintenance, and overhaul of the equipment. The tools shall be shipped in separate, heavily constructed wooden boxes provided with hinged covers and padlock hasps.

Maintenance tools for each piece of equipment shall be boxed separately and the boxes shall be marked with the name of the project and the name of the equipment.

The maintenance tools shall include all special handling rigs, bars, slings, and cable. All maintenance tools shall be in new and unused condition and shall become the property of the Purchaser. The bidder's proposal shall include the list of maintenance tools which shall be furnished with the equipment.

In addition to the tools for maintenance and dismantling, the Supplier shall furnish the use of all special tools required for erection of the equipment. Erection tools shall remain the property of the Supplier and all shipping costs to and from the jobsite shall be at the Supplier's expense. Erection tools for each piece of equipment shall be boxed separately. Erection tools shall not be boxed with maintenance tools.

Q500 Shop Drawings and Instruction Manuals (Revised by Project: 11Nov21)

This section, in conjunction with the Schedule of Submittals, stipulates the requirements for engineering data that Supplier shall submit for design information and review. Document submittal procedures shall be in accordance with the requirements of this Purchase Order.

Q500.1 Submittal Requirements

Technical data shall be submitted in electronic format.

Electronic technical data submittals shall be made using the Project Central project collaboration system, a Web-based file transfer service. If Supplier does not already have Project Central transmittal capability, the Purchaser will provide the required credentials for access upon Purchase Order award.

Notification to Purchaser that submittals have been posted to Project Central shall be in accordance with the correspondence requirements of this Purchase Order.

Q500.2 Compliance Reports

Reports shall be submitted that record the tests and/or calculations required in the specification technical sections. Reports shall be submitted for each piece of equipment or each plant system. Specified drawings shall be submitted with the compliance reports.

Q500.3 Motor and Electric Actuator Information

If required by the Specifications, Motor and Electric Actuator Information shall be submitted in accordance with Supplemental Q502.

Q500.4 Drawings

Drawings shall be in sufficient detail to indicate the kind, size, arrangement, component weight, breakdown for shipment, and operation of component materials and devices; the external connections, anchorages, supports, and grouting requirement; the dimensions needed for installation and correlation with other materials and equipment; and the information specifically requested in the Schedule of Submittals.

Drawings for use in installation and erection shall include a Bill of Quantity (BOQ), identifying the unit of measure, quantity, description, part number (or piece mark identifier), location reference on the drawing and any other details required by Purchaser. It may be acceptable to have the BOQ detail in other means or media, if approved in advance by Purchaser.

Supplier shall fully complete, check, and certify drawings, including drawings produced by a subcontractor, for compliance with the Purchase Order requirements prior to submittal. Drawings shall have title block entries that clearly indicate the drawing is certified.

Each submitted drawing shall be project unique and shall be clearly marked with the name of the project, unit designation, Purchaser's Purchase Order title, Purchaser's Purchase Order file number, project equipment or structure nomenclature, component identification numbers, and Purchaser's name. Equipment, instrumentation, and other components requiring Purchaser-assigned identification tag numbers shall be clearly identified on the drawings. If standard drawings are submitted, the applicable equipment and devices furnished for the project shall be clearly marked.

Transmittal letters shall identify which Schedule of Submittals item (by item number) is satisfied by each drawing or group of drawings. The transmittal letter shall include the manufacturer's drawing number, revision number, and title for each drawing attached as well as all fields listed in the transmittal letter. Each drawing title shall be unique and shall be descriptive of the specific drawing content. Transmittal letters for resubmitted drawings shall include the Purchaser's drawing numbers.

Catalog pages are not acceptable, except as drawings for standard nonengineered products and when the catalog pages provide all dimensional data, all external termination data, and mounting data. The

catalog page shall be submitted with a typed cover page clearly indicating the name of the project, unit designation, specification title, specification number, component identification numbers, model number, Supplier's drawing number, and Purchaser's name.

Drawings shall be submitted with all numerical values in English and/or metric (SI) units.

All multi sheet documents shall be submitted in their entirety for all revisions.

Q500.4.1 Drawing Submittal

Drawings shall be submitted electronically in unlocked¹ (i.e., no document restrictions or password protection) Portable Document Format (PDF) as well as in native AutoCAD or MicroStation format. If Supplier does not have the capability to provide Portable Document Format (PDF), an alternative submittal format shall be used as mutually agreed between Purchaser and Supplier.

Q500.4.2 Drawing Processing

Supplier's engineering schedule shall allow a minimum of three (3) weeks for transmittal, processing, and review of drawings and data by Purchaser.

Unless this Purchase Order indicates that a drawing or engineering data submittal by Supplier is to be for Purchaser's information only, Purchaser, upon receipt of submittals, shall review and return same to Supplier, marked "No Exceptions Noted," "Exceptions Noted," "Received for Distribution," "Returned for Corrections," "Release for Record," "Void," "Superseded" or "Hold" The timing of Supplier's submittals and Purchaser's review shall be in accordance with the Completion Dates for same as set forth in the Purchase Order. The submittal of any drawing or other submittal document by Supplier to Purchaser under this Purchase Order will be certification by Supplier that the information set forth therein is accurate in all material respects.

Q500.4.2.1 No Exceptions Noted (NE) or Received for Distribution (RD). Upon receipt of a submittal marked "No Exceptions Noted" or "Received for Distribution," Supplier may proceed with its Work to the extent of and in accordance with the submittal. Supplier shall not resubmit unless the drawing or document is revised, in which case it shall be resubmitted as a new document revision in accordance with Q500.4.2.7.

Q500.4.2.2 Exceptions Noted (EN). Upon receipt of a submittal marked "Exceptions Noted" and if Supplier concurs with Purchaser's comments, Supplier shall incorporate same and may proceed with its Work to the extent of and in accordance with the annotated submittal. Supplier shall submit to Purchaser within fourteen calendar days a revision to the original submittal in which Purchaser's comments have been incorporated. If Supplier determines that it cannot incorporate Purchaser's comments without prejudice to Supplier's warranty or other obligations under this Purchase Order, Supplier shall so advise Purchaser in writing within seven calendar days of its receipt of Purchaser's comments, stating the reasons therefore. Supplier may proceed with its Work to the extent of and in accordance with the annotated submittal only upon Purchaser and Supplier resolving Purchaser's comments.

Q500.4.2.3 Returned for Corrections (RC). Upon receipt of a submittal marked "Returned for Corrections," Supplier shall immediately take all necessary action to revise its submittal in accordance with Purchaser's comments, the Specification, and the Drawings, and shall resubmit to Purchaser for review the corrected original submittal, voiding previous information and adding new documents if required. In no event shall Supplier proceed with the affected Work until its revised submittals have been returned to Supplier marked "No Exceptions Noted" or "Exceptions Noted" by Purchaser.

Q500.4.2.4 Release for Record (RR). Receipt of a submittal marked "Release for Record" indicates that there are no specific objections to the document. Work may proceed. Certain project information required by the Purchaser's document management system may have been added electronically to the drawing

¹ If a submitted PDF is locked or password protected, the file will be unlocked using appropriate tools to allow import into the electronic drawing review tool.

and provided to Supplier for the record. Supplier shall not resubmit the drawing or document unless revisions to the design are required. If revisions are required, Supplier shall incorporate Purchaser's information and resubmit as a new revision. Purchaser's project-specific information shall be added if future revisions and submittals are made.

Q500.4.2.5 Void (VO) or Superseded (SS). Receipt of a submittal marked "Void" or "Superseded" does not require any action by Supplier. "Void" indicates that the submittal is no longer applicable to the project and is not being replaced by other drawings or data. "Superseded" indicates that different drawings or data have replaced the previously submitted drawings and data; this status does not pertain to revisions of the same drawings and data.

Q500.4.2.6 Hold (HO). A submittal may be given a status of "Hold" by the Purchaser, or the Supplier may have "Holds" on the submitted drawing.

For a Hold status designated by the Purchaser, the Supplier shall not proceed with the work that is designated on "Hold" except as specifically directed by the Purchaser. Additional information required for the Supplier to release the "Hold" will be transmitted from the Purchaser later.

The Supplier shall provide information to the Purchaser about the cause for any "Holds" designated on the drawing and immediately take all action necessary to resolve the "Holds". The Supplier shall resubmit the drawing for review once the "Holds" are removed from the drawing and should make all efforts to not submit drawings to the Purchaser until drawing review comments have been received back from the Purchaser.

Q500.4.2.7 Resubmittals. If during or subsequent to the completion of the submittal process, Supplier makes further changes to the equipment and materials shown on submittals that have been reviewed by Purchaser, the changes shall be clearly marked on the submittal by Supplier and the submittal process shall be repeated. If changes are made by Supplier after delivery to the Jobsite, drawings conforming to construction records indicating the changes shall be prepared by Supplier and submitted to Purchaser for review. Any resubmittal of information shall clearly identify the revisions by footnote or by a form of back-circle, with revision block update, as appropriate. The Supplier shall put the Black & Veatch drawing number on the transmittal letter and submit a complete document.

Q500.4.2.8 Purchaser's Review. Purchaser's review of drawings and other submittals will cover only general conformity of the data to the Specifications and Drawings, external connections, interfaces with equipment and materials furnished under separate specifications, and dimensions that affect plant arrangements. Purchaser's review does not include a thorough review of all dimensions, quantities, and details of the equipment, material, device, or item indicated or the accuracy of the information submitted. Review and comment by Purchaser of Supplier's Drawings or other submittals shall not relieve Supplier of its sole responsibility to meet the Completion Dates requirement of this Purchase Order and to supply Goods that conform to the requirements of this Purchase Order.

Q500.4.2.9 File Returns to Supplier. The Project Central **or** project-specific web service will be used by Purchaser to return PDF files to Supplier.

A copy of the manifest will be returned to Supplier indicating drawings statused as NE (No Exceptions Noted).

Each packet of drawings returned to Supplier will include a manifest generated by Purchaser. The manifest will include a list of drawings transmitted, manufacturer's drawing numbers, Purchaser's assigned drawing numbers, Purchaser's drawing titles, and the status of the drawings.

Files returned to Supplier will be in PDF format.

Q500.5 Wiring Diagrams

If required by the Specifications, Wiring Diagrams shall be submitted in accordance with Supplemental Q502.

Q500.6 Instruction Manuals

If required by the Specifications, Instruction Manuals shall be submitted in accordance with Supplemental Q501.

Q501 Instruction Manuals (Revised by Project: 11Nov21)

This section, in conjunction with Section Q500 and the Schedule of Submittals included in the Supplemental Terms and Conditions of this Purchase Order, stipulates the requirements for Instruction Manuals that Supplier shall submit for design information and review. Document submittal procedures shall be in accordance with the requirements of this Purchase Order, Section Q500, and the following.

Q501.1 Submittal Requirements

Hard copies shall be submitted to the address indicated for Technical Documents in the Supplementary Terms and Conditions of this Purchase Order for the documents listed below. The following number of copies shall be submitted unless otherwise indicated in the Schedule of Submittals:

Submittal Description	Copies Required
Proof Copies	3
Final Copies	5

Q501.2 Instruction Manuals

Supplier shall furnish proof and final instruction manuals for the unloading, storage, installation, operation, and maintenance of the equipment. The manuals shall be delivered as specified in the Schedule of Submittals.

Manuals shall include the following information specific to the furnished equipment. The documents or drawings submitted within the Instruction Manual shall be consistent with the documents or drawings previously submitted for Purchaser's review. Documents or drawings which were previously submitted for review and are included within the Instruction Manual shall be identical, with the same revision number. If these documents or drawings were revised due to design revisions subsequent to issuance of the Instruction Manuals, the document or drawing shall be resubmitted in accordance with Article Q500.4.2.7 in Supplemental Q500 so the Purchaser can provide updated drawings to the holders of the Instruction Manuals.

Table of contents and index tabs. (If multiple volumes are required, a table of contents listing materials included in each volume shall be supplied for each volume.)

Specifications, test data, and all performance curves specified in the technical specifications.

Description of the equipment, including illustrations showing elevations, cross section, and all details of the equipment with all parts named, numbered, and identified with Purchaser's tag numbers. When multiple model numbers are shown on the drawings, the equipment supplied for the project shall be clearly identified.

Complete and detailed operating instructions, including safety precautions, philosophy of operation and, where applicable, process optimization techniques.

Detailed minor and major maintenance instructions, including description, use of special tools furnished, and preventive maintenance schedule.

Instructions for receiving, inspection, storage, and handling of equipment prior to installation.

Installation instructions.

Inspection procedures.

Troubleshooting guide.

All fluid systems schematics and piping diagrams.

Control logic diagrams, as applicable.

Electrical wiring diagrams, as applicable.

Calibration Data Sheet for each adjustable instrument included in the scope of supply.

Motor Information Sheets, as applicable.

Electric Actuator Information Sheets, as applicable.

Control Panel Arrangements, as applicable.

Supplier and Sub-supplier operating and maintenance manuals.

Illustrated parts breakdown.

Assembly drawings.

Parts lists.

List of acceptable lubricants.

Nameplate information and shop order numbers for each item of equipment and associated component parts thereof.

List of recommended spare parts.

List of maintenance tools furnished with the equipment.

The above listed requirements are the minimum requirements; however, requirements that are clearly not applicable to the equipment may be deleted with Purchaser's approval. Additional information that is necessary for proper operation and care of the equipment shall also be included.

Q501.2.1 Binding

Each copy of the manuals shall be assembled and bound in three-ring or post binders designed for rough usage. Light-duty binders will not be acceptable.

Front covers and backbones of the manuals shall be marked with lettering per the Typical Instruction Book Cover attached at the end of this section.

TYPICAL INSTRUCTION BOOK COVER

<p>NAME OF EQUIPMENT</p>	<p>CLIENT'S NAME</p>	<p>36</p>
	<p>NAME OF UNIT UNIT NUMBER</p>	<p>24 24</p>
<p>CLIENT'S NAME</p>	<p>INSTRUCTION BOOK FOR NAME OF EQUIPMENT VOLUME NUMBER*</p>	<p>36 36 36 36</p>
<p>NAME OF UNIT</p>	<p>PURCHASE ORDER NUMBER**</p>	<p>24</p>
<p>UNIT NUMBER</p>	<p>MANUFACTURER'S NAME MANUFACTURER'S ADDRESS</p>	<p>24 24</p>
<p>PURCHASE ORDER NUMBER**</p>		
<p>VOLUME NUMBER*</p>	<p>BLACK & VEATCH OVERLAND PARK, KANSAS</p>	<p>14 14</p>
<p>(Backbone)</p>	<p>(Cover)</p>	

NOTES:

1. All lettering shall be a block style font such as Arial.
2. All backbone lettering shall be 14 point.
3. Cover lettering shall be point sizes indicated in column to right of cover illustration.
4. *Volume number required only if instructions are contained in more than one volume.
5. **Purchaser assigned Purchase Order number.

Q502 Electrical Data (Revised by Project: 11Nov21)

This section, in conjunction with Section Q500 and the Schedule of Submittals included in the Supplemental Terms and Conditions of this Purchase Order, stipulates the requirements for Electrical Data that Supplier shall submit for design information and review. Document submittal procedures shall be in accordance with the requirements of this Purchase Order, Section Q500, and the following.

Q502.1 Submittal Requirements

Electronic copies shall be submitted to the address indicated for Technical Documents in the Supplementary Terms and Conditions of this Purchase Order for the documents listed below. The following number of copies shall be submitted unless otherwise indicated in the Schedule of Submittals:

Submittal Description	Copies Required
Motor Information Sheets	Electronic
Electric Actuator Information Sheets	Electronic
Wiring Diagrams	Electronic
Supplier Cable Data	Electronic
Supplier Circuit List	Electronic

Q502.2 Motor and Electric Actuator Information

Electronic copies of these information sheets shall be downloaded from the following websites (no password required), electronically completed by filling in the requested data, and submitted by the dates shown in the Schedule of Submittals.

<https://www.bv.com/sites/default/files/2020-02/MotorInfoSheet.doc>

<https://www.bv.com/sites/default/files/2020-02/ElecActuatorInfoSheet.doc>

An information sheet shall be completed for each motor and electric actuator furnished under the Purchase Order.

Q502.3 Wiring Diagrams

Connection and interconnection wiring diagrams furnished by Supplier shall be drawn with all devices indicated in their relative physical locations and shall accurately show the equipment and terminals arranged as they would appear to a person wiring the equipment. When accepted by Purchaser, termination schedules identifying field terminations may be substituted for wiring diagrams for connections external to equipment.

When the equipment furnished by the Supplier is split for shipment and provided with terminal blocks and wiring required to interconnect the shipping sections in the field, the wiring diagrams from the Supplier shall clearly identify that the wiring across the shipping splits needs to be field installed.

Where interconnecting wiring from different items of equipment or sectional wiring diagrams of the same item of equipment appear on different wiring diagram sheets, all interconnections shall be clearly identified. Where sectional wiring diagrams are required for a single item of equipment, such as a relay panel or control panel, the section of the panel that is represented by each individual wiring diagram sheet shall be keyed on that sheet in a manner acceptable to Purchaser.

Information indicated on Supplier's drawings shall include wiring and terminal numbers of the individual panel items as they actually will appear in the panel, set points, contact arrangements of switches and relays (state of device and device contacts shall be clearly indicated), and internal wiring of relays and

instruments. Spare terminals and all unused contacts of the individual panel items shall be shown on the drawings.

Elementary diagrams shall be cross-referenced to terminal markings on the connection and interconnection diagrams, but do not need to indicate complete details of circuits external to the panels, unless required by Purchaser. Each item of panel mounted equipment indicated on the diagrams shall be identified by item number and name.

Q502.3.1 As-Built Drawings

As-built prints of each final electrical wiring and elementary diagram for equipment shall be furnished in accordance with Article Q500.4.2.7. An electronic copy of each drawing shall be submitted to Purchaser.

Q502.3.2 Supplier Cable Data and Circuit List

Where the supplier scope includes design of circuits to be installed by the Purchaser, the Supplier shall submit one (1) supplier circuit list per Purchase Order as noted below.

Where Supplier provides cable, the Supplier shall submit one (1) supplier cable list per Purchase Order as noted below.

Copies of Supplier Cable Data and Circuit List are included at the end of this section. Electronic copies of these information sheets shall be downloaded from the following websites (no password required), electronically completed by filling in the requested data, and submitted by the dates shown in the Schedule of Submittals.

<https://www.bv.com/sites/default/files/2020-02/SUPPLIER%20CABLE%20DATA.xlsx>

<https://www.bv.com/sites/default/files/2020-02/SUPPLIER%20CIRCUIT%20LIST.xlsx>

Supplier data shall be submitted for each cable type and circuit furnished under the Purchase Order.

S100 Seismic Design (Revised by Project: 12Nov21)

S100.1 General

This article specifies the general criteria and procedures that shall be used to ensure that structures, components, and equipment meet performance objectives during and following a seismic event.

The building or structure structural system shall provide a continuous load path or paths, with adequate strength and stiffness to transfer all seismic forces from the point of application to the final point of resistance.

Structures, components, and equipment furnished by the Supplier shall be designed so that seismic forces are positively transferred to the Purchaser's supporting structure or foundation. The transfer method shall be acceptable to the Purchaser and may include, but not be limited to, bolts, welds, guides, bumpers or shear lugs as appropriate. Frictional resistance due to gravity shall not be considered in evaluating the required resistance to seismic forces.

For seismic design of vessels, tanks, and other components, contents that are flammable, explosive, corrosive, acidic, caustic, toxic, or that otherwise present a danger if released shall be considered hazardous materials.

Seismic design shall be performed in accordance with the building code specified in Supplemental Specification D100 Site Meteorological and Seismic Data along with the applicable edition (as required by the specified building code) of the following references:

American Institute of Steel Construction (AISC), AISC 360, "Specification for Structural Steel Buildings."

American Institute of Steel Construction (AISC), AISC 341, "Seismic Provisions for Structural Steel Buildings."

American Concrete Institute (ACI), ACI 318, "Building Code Requirements for Structural Concrete."

American Concrete Institute (ACI), ACI 307, "Design and Construction of Reinforced Concrete Chimneys."

American Society of Mechanical Engineers (ASME), "Boiler and Pressure Vessel Code" and all addenda.

American National Standards Institute (ANSI), "ASME Code for Pressure Piping, ASME B31.1, Power Piping."

Manufacturers Standardization Society of the Valve and Fitting Industry (MSS), MSS SP-58, "Pipe Hangers and Supports - Materials, Design, and Manufacture."

American Petroleum Institute (API), API 650, "Welded Steel Tanks for Oil Storage."

American Water Works Association (AWWA), AWWA D100, "Welded Carbon Steel Tanks for Water Storage."

National Fire Protection Association (NFPA), NFPA 13, "Standard for the Installation of Sprinkler Systems."

Other nationally recognized and accepted design standards and references as appropriate.

S100.2 Seismic Forces

Seismic forces shall be determined from the basic seismic parameters given in Supplemental D100. The design forces and their distribution over the height of the building or structure shall be determined using a linearly elastic analysis model and the procedures listed in the specified building code. Load combinations, including seismic, shall be in accordance with the specified building code.

W_p for tanks, bins, and silos shall represent the weight of the tank structure and appurtenances and the operating weight of the contents at maximum rated capacity. Hydrodynamic effects of contents shall be considered in the seismic design of vessels and tanks as required by the specified building code.

Seismic dynamic forces shall be considered in the seismic design of below ground structures in addition to the static soil pressures.

S100.3 Seismic Design and Certifications

S100.3.1 Buildings

Buildings shall provide sufficient strength and ductility to resist the specified seismic effects and may use any of the basic structural systems permitted by the specified building code. Usage of structural systems shall be in accordance with the limitations prescribed in the specified building code. The effects of both plan and vertical irregularities shall be considered, as required by the specified building code.

Buildings shall be seismically analyzed using either the Equivalent Lateral Force Method or Modal Analysis in accordance with the specified building code and shall meet all of the design, proportioning, detailing, inspection, and quality assurance provisions of the specified building code.

The effective seismic weight, "W" as defined in ASCE 7, for buildings shall include the total dead load, the total operating weight of permanent equipment and the effective contents of vessels, and applicable portions of other loads, as required by the specified building code.

S100.3.2 Nonbuilding Structures

Nonbuilding structures include all self-supporting structures, other than bridges, and dams, that are supported by the earth; that carry gravity loads; and that may be required to resist seismic effects. These include, but are not limited to, substation structures, transformers, breakers, etc. Design of nonbuilding structures shall provide sufficient strength and ductility, consistent with the requirements for buildings, to resist the specified seismic effects.

Nonbuilding structures shall be seismically analyzed using either the Equivalent Lateral Force Method or Modal Analysis in accordance with the specified building code, and shall meet all of the design, proportioning, detailing, inspection, and quality assurance provisions of the specified building code and other referenced codes.

The effective seismic weight, "W," for nonbuilding structures shall include all dead load as defined for buildings and shall also include all normal operating contents of tanks, vessels, bins, and piping.

S100.3.3 Not Used.

S100.3.4 Not Used.

S100.4 Documentation

Complete structural support and anchorage details shall be shown on all drawings, including the size of members, details of connections, and other connection information requiring incorporation by the Purchaser into the Purchaser's structures or foundations.

Equipment and component drawings shall indicate the total load and/or loads to be transmitted to the structure that must ultimately restrain the components, equipment, or structure. This information shall include the weight, dimensions locating the center of gravity of the component or equipment, or the seismic design forces (magnitude, direction, and location) acting on the supports.

If requested by the Purchaser, design calculations shall be submitted for all structures, equipment, or components which are designed in accordance with this Supplemental Specification. If requested by the Purchaser, these calculations shall be certified by a professional engineer registered in the appropriate jurisdiction.

The following seismic design data shall be indicated on the design drawings:

Risk Category.

Mapped Spectral Response Accelerations, S_s and S_1 .

Spectral Response Coefficients, S_{DS} and S_{D1} .

Site Class.

Seismic Design Category.

For Structures and Nonbuilding Structures Similar to Buildings:

Importance Factor, I .

Basic Seismic Force Resisting System.

Design Base Shear.

Seismic Response Coefficient, C_s .

Response Modification Factor, R .

Overstrength Factor, Ω_o .

Analysis Procedure.

For Nonstructural Components Including Equipment:

Component Importance Factor, I_p .

Seismic Design Force, F_p .

Component Response Modification Factor, R_p .

Component Amplification Factor, a_p .