



**AGENDA ITEM EXECUTIVE SUMMARY**

Agenda Item:	Consider Resolution Awarding Bid to OTC Services Inc for the construction and delivery of a power transformer for Geneva Business Park III Substation.
Presenter & Title:	Aaron Holton – Superintendent of Electric Services
Date:	February 21, 2023

***Please Check Appropriate Box:***

<input checked="" type="checkbox"/>	Committee of the Whole Meeting	<input type="checkbox"/>	Special Committee of the Whole Meeting
<input checked="" type="checkbox"/>	City Council Meeting	<input type="checkbox"/>	Special City Council Meeting
<input type="checkbox"/>	Public Hearing	<input type="checkbox"/>	Other -

Associated Strategic Plan Goal/Objective: EMS II

Estimated Cost: \$ 1,155,661.00	Budgeted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Other Funding? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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*If "Other Funding," please explain how the item will be funded:*

**Executive Summary:**

In anticipation of this load growth in Geneva Business Park, the Geneva Business Park III substation and transformer will need to be constructed. Bids for the power transformer for GBPIII, the longest lead time item, were posted and 5 companies responded.

<b>Bidder</b>	<b>Amount</b>
OTC Services	\$1,155,661.00
Virginia –Georgia Transformer	\$1,043,305.00
Niagara Power Transformer	\$1,184,277.00
WEG Transformer USA	\$1,308,000.00
Delta Star Inc	\$1,325,239.00

Virginia-Georgia Transformer was the lowest bidder, however due to several factors including proposed changes to the general terms and conditions, payment terms and omissions from the original bid packet, the bid was rejected. OTC Services Inc. submitted the lowest bid that conformed to the bid requirements except for payment terms and general terms and conditions. Upon a request for clarification OTC accepted the City’s general terms and conditions and accepted a 10% retainage after deliver of the transformer.

The anticipated delivery date of the transformer will be March 1, 2025 due to lead times to build the transformer. Staff recommends accepting OTC Service Inc.’s payment structure of 25% deposit to be paid upon receipt of order, 25% paid with material order, 40% paid after completion of factory testing and the final 10% paid after the successful testing and acceptance of the installed transformer. Expenses for the transformer will be paid over multiple fiscal years.

**Attachments:** *(please list)*

- Recommendation Letter from Stanley Consultants dated January 31, 2023 with exhibits
- Resolution
- Draft Conformed Contract for delivery of a new power transformer with OTC Services Inc

**Voting Requirements:**

*This motion requires a simple majority of votes for passage.*

*The Mayor may vote on three occasions: (a) when the vote of the aldermen or trustees has resulted in a tie; (b) when one half of the aldermen or trustees elected have voted in favor of an ordinance, resolution, or motion even though there is no tie vote; or (c) when a vote greater than a majority of the corporate authorities is required by state statute or local ordinance to adopt an ordinance, resolution, or motion.*

**Recommendation / Suggested Action:** *(how the item should be listed on agenda)*

Recommend resolution awarding bid to OTC Services Inc for the construction and delivery of a new power transformer for Geneva Business Park III substation in an amount of \$1,155,661.00 and authorize the City Administrator to approve change orders not to exceed 10% of the contract amount.

January 31, 2023

Jose Ruiz  
Manager of Electric Operations  
City of Geneva  
1800 South Street  
Geneva, IL 60134

**SUBJECT: Contract 22-02 Business Park III Transformer Procurement –  
Letter of Recommendation**

Dear Jose:

On January 9, 2023, five (5) bids were received and opened at the City of Geneva (Geneva) in response to the request for proposal for the Business Park III Transformer Procurement Contract. The bids were opened and read aloud by Geneva. The bids were then sent to Stanley Consultants to be reviewed in their office. A bid tabulation of this review is enclosed for your review. (Attachment A)

All bids had a number of exceptions and clarifications. The main clarifications were that each bidder included their own standard terms and conditions and payment schedule. The two apparent lowest evaluated bids were received from Virginia Georgia Transformer (VGT) first apparent low bidder and OTC Services, Inc. (OTC) second apparent low bidder.

An email with requested clarifications was sent to both VGT and OTC with responses returned by January 23, 2023. These clarifications are attached and can be reviewed. (VGT - Attachment B, OTC – Attachment C) After the clarification emails, both bidders provided payment options for a portion of the transformer cost being held till energization and the removal of their own terms and conditions, however VGT still provided extensive exceptions to the terms and conditions provided in the original procurement document. All these exceptions can be seen in the attached VGT Bid Clarification Email, (Attachment B) but some of the larger items include:

- Reducing the required amount of insurance provided by VGT
- Removing all payment and payment review procedures provided for in the contract

Due to the extensive clarifications provided by VGT even after requesting clarifications, the VGT bid was deemed non-conforming to the bid.

Based on this determination, OTC becomes the apparent low conforming bid.

Stanley Consultants recommends that Contract 22-02 Business Park III Transformer Procurement be awarded to OTC Services, Inc. for the bid price of \$1,155,661 which is within the construction cost estimate for the transformer of \$1,200,000.



A draft conformed contract between the City of Geneva and OTC has been provided (Attachment D). Please review and if Geneva is in agreement with the recommendation of awarding this contract to OTC please print and sign three originals of the Agreement Between Buyer and Seller page 5, and prepare a Notice-to-Proceed letter for OTC. Send the Notice-to-Proceed letter with the signed signature pages to OTC with the direction to sign and date all three originals and send to me to be used in creating the conformed contract.

If you have any questions, please contact me at 563.264.6461.

Sincerely,

Philip E. Schulz  
Project Manager  
Stanley Consultants, Inc.

cc: Aaron Holton  
Files

Attachments: Appendix A - Bid Tabulation  
Appendix B - VGT Bid Clarification Email  
Attachment C - OTC Bid Clarification Email  
Attachment D - Draft Conformed Contract

Appendix A

City of Geneva

Business Park III Substation Transformer Procurement  
12/16/20 MVA, 34.5 kV - 12.47/7.2 kV

Manufacturer	OTC Services	WEG (PwrOne)	Delta Star	Virginia - Georgia Transformer	Niagara Power Transformer Corp.
Bid Document is Signed	Y	Y	Y	Y	Y
Bid Bond	Y	Y	Y	Y	Y
Warranty	60/66MO	60/66MO	60/66MO	60MO	60/66MO
Data Sheets	Y	Y	N		Y
Size Meets Max Dimensions	Y	Y	Y	Y	Y
Clarifications	Y	Y	Y		Y
Delivery	102-106 weeks	75-80 weeks	108-112 weeks	60-66 weeks	July 1, 2025 - Approx. 125 WEEKS
Bid Price	\$ 1,147,661.00	\$ 1,291,000.00	\$ 1,306,239.00	\$ 944,005.00	\$ 1,170,277.00
Owner Travel Allowance	\$ 2,500.00	\$ 2,500.00	\$ 5,000.00	\$ 2,500.00	\$ 2,500.00
Engineer Travel Allowance	\$ 2,500.00	\$ 2,500.00	\$ 5,000.00	\$ 2,500.00	\$ 2,500.00
Owner Per Diem Allowance	\$ 500.00	\$ 2,000.00	\$ 1,500.00	\$ 500.00	\$ 1,500.00
Engineer Per Diem Allowance	\$ 2,500.00	\$ 10,000.00	\$ 7,500.00	\$ 2,500.00	\$ 7,500.00
Additional Cost to Attend Witness Tests				\$ 20,000.00	
Cost to Offload Assemble and Test in Field				\$ 45,800.00	
Cost of Required Spare Parts	Included above			\$ 6,500.00	
Total Bid Price	\$ 1,155,661.00	\$ 1,308,000.00	\$ 1,325,239.00	\$ 1,024,305.00	\$ 1,184,277.00
2YR Warranty Adder	Included	Included	Included	\$ 12,625.00	Included
Total Bid Price (with 2YR Warranty)	\$ 1,155,661.00	\$ 1,308,000.00	\$ 1,325,239.00	\$ 1,036,930.00	\$ 1,184,277.00
5YR Warranty Adder	Included	Included	Included	\$ 19,000.00	Included
Total Bid Price (with 5YR Warranty)	\$ 1,155,661.00	\$ 1,308,000.00	\$ 1,325,239.00	\$ 1,043,305.00	\$ 1,184,277.00
Auxiliary Losses @ Rated MVA	2.00	3.00	6.30	5.00	4.50
No-Load Losses @ Rated Voltage (kW)	10.00	11.50	10.17	11.00	9.90
Load Losses @ Max. MVA Rating (kW)	170.00	43.00	45.39	177.71	288.40
Cost of Auxiliary Losses (\$130.53/kW)	\$ 261.06	\$ 391.59	\$ 822.34	\$ 652.65	\$ 587.39
Cost of No-load Losses (\$1740.27/kW)	\$ 17,402.70	\$ 20,013.11	\$ 17,698.55	\$ 19,142.97	\$ 17,228.67
Coast of Load losses (\$502.58/kW)	\$ 85,438.60	\$ 21,610.94	\$ 22,812.11	\$ 89,313.49	\$ 144,944.07
Total Cost of Losses	\$ 103,102.36	\$ 42,015.64	\$ 41,332.99	\$ 109,109.11	\$ 162,760.13
Price + Cost of Losses	\$ 1,258,763.36	\$ 1,350,015.64	\$ 1,366,571.99	\$ 1,152,414.11	\$ 1,347,037.13
Service Engineer Requirement					
- Cost per day	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	\$ 2,750.00	\$ 2,500.00
- Travel per round trip	IN ABOVE	\$ 2,500.00	\$ 2,500.00	\$ 5,000.00	\$ 2,500.00
Cost of Spare Parts	In Base Cost	\$ 14,200.00	\$ 6,500.00	\$ 6,500.00	\$ 11,000.00
Total Evaluated Cost	\$ 1,258,763.36	\$ 1,350,015.64	\$ 1,366,571.99	\$ 1,158,914.11	\$ 1,347,037.13
Percent of low bid	109%	116%	118%	100%	116%
Total Purchase Price of Recommended Supplier					
Sound Level at 1 ft	70	70	69.00	Per NEMA TR1	68/70
Sound Level at 6 ft	69	73	72.00	Per NEMA TR1	68/70
payment	25% on purchase order 25% with material order 40% after FAT payment schedule is negotiable, 10% after Energization of transformer.	20% at order 20% at Approval drawings 40% Complete Core and Coil 10% at successful testing and 10% at delivery	30% at order 30% at drawing submission 30% after FAT 10% at delivery and acceptance	15% upon order 20% with approval dwgs, 55% at shipment, and 10% after energization.	10%, 90% as requested in spec
Comments	- Freight, Crane and Field Service price to be determined at time of shipment - Built in Ohio - FOB Pad - Price subject to cost based escalation - Replaced terms and conditions with OTC T&C but removed when clarified	- load losses appear low - Built in Mexico Plant - Replaced terms and conditions with WEG T&C	- Escalation - Built in Quebec but can change at Delta Star discretion - Will be tested with Mineral oil in Factory - Replaced terms and conditions with Delta Star T&C - Did not provide losses so assumed worse case for all bids	- Replaced terms and conditions with VT T&C, when clarified, provided actual clarification to T&C, however very extensive and not acceptable to City - Spare part not included in base bid, have added cost above - Built in Roanoke, VA - SFRA at Site, Offloading and Assembly and test not included in base bid, has been added to cost above	- Manufactured in Buffalo NY - Replaced terms and conditions with Niagara T&C

**Schulz, Phil**

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**From:** Chad Kraml <Chad\_Kraml@vatransformer.com>  
**Sent:** Monday, January 23, 2023 2:55 PM  
**To:** Schulz, Phil  
**Cc:** Aaron Holton (aholton@geneva.il.us); Ruiz, Jose; Brian McCarrick; Vivek Gupta; Nancy Bryant  
**Subject:** RE: City of Geneva Proposal # M224701A  
**Attachments:** Clarifications on Terms and Conditions-City of Geneva, IL - M224701A 1.23.23.docx

**\*\*\* EXTERNAL EMAIL - Use caution and verify authenticity before trusting any contents. \*\*\***

Hi Phil,  
 I appreciate you reaching out to me with these clarifications and comments. I look forward to working with you and the City of Geneva and do not want to let these get in the way of earning your business.

Please see answers below in RED, highlighted in Green. Also, attached are exceptions to your terms and conditions as requested. Please let me know if you need anything further from us on this part. We are willing to work with the City of Geneva.

Thanks,  
 Chad

Sincerely,

**Chad Kraml,**  
 Sales Engineer – Public Power Utilities Central  
 Virginia Transformer – Georgia Transformer  
 Mobile: 540-682-6618  
 E-Mail: [Chad\\_Kraml@vatransformer.com](mailto:Chad_Kraml@vatransformer.com)  
<http://www.vatransformer.com>



**VIRGINIA - GEORGIA TRANSFORMER**  
 ONE SOURCE-ONE COMMITMENT

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**From:** Schulz, Phil <SchulzPhil@stanleygroup.com>  
**Sent:** Wednesday, January 18, 2023 9:39 PM  
**To:** Chad Kraml <Chad\_Kraml@vatransformer.com>  
**Cc:** Aaron Holton (aholton@geneva.il.us) <aholton@geneva.il.us>; Ruiz, Jose <jruiz@geneva.il.us>  
**Subject:** City of Geneva Proposal # M224701A

Chad,  
 In review of the Virginia Transformer (VT) bid received for the Business Park III Substation Transformer we have the following concerns that we would like address by VT.

- VT removed all the standard terms and conditions that were provided in the original documents and replaced them with VT standard terms and conditions. This is not acceptable. Standard terms and conditions provided with

original documents are to be used and exceptions of the standard terms and conditions are to be provided where needed. **Please see attached Clarifications on Terms and Conditions-City of Geneva, IL**

- VT appears to have taken exception to the technical documents that were provided to bid on and just stated that the transformer would be bid on the IEEE/ANSI standards. Please confirm that the technical documents will be followed in the design. If there are items that will not be followed, these need to be called out as specific exceptions. **- VTC will Provide the Transformer as per the specification was Provided and That was VTC standard Language Which is in Proposal**
- 
- VT did not fill out the factory witness testing portion of the proposal form. Does VT not allow factory witness testing at your transformer facility, or does VT not require any additional pricing added to the base price for this option.
  - o Note in the Spec section 33 73 17 part 1.03.B the total trip cost for the witness testing will deducted from the final payment of the transformer - **Price adder for Trip cost would be ~ \$5000**
  - o If factory witness testing is not allowed, what additional provisions can VT provide in leu of this. (i.e. possibly additional warranty, etc.)  
**Below are the Witness testing Price adder :-**
    1. Dielectrics and other tests - limited to one (1) day = \$3,000
    2. Temp takedowns and dielectrics - limited to two (2) days =\$8,000
    3. All tests - three (3) days = \$14,000
    4. All tests - four (4) days= \$ 20,000**Note: Testing days include weekends & evenings**
- Sound levels provided in Data sheets were shown as PER NEMA TR1. Please provide actual sound levels that will provided for this transformer. **Sound Level AS per NEMA TR1 = 69 Noise (dBA) @ BASE MVA**
- Dimensions provided in data sheet show overall width of 180, but transformer base width of 189. Overall width cannot be larger than base width. One of these must have been entered incorrectly. Please provide update to dimensions provided. **Its TYPO ERROR , the correct BASE WIDTH AND DEPTH ARE = 120 x 60**
- Required spare parts are shown with prices in data sheet as requested. Please verify that these prices are included in the base bid as they are required spare parts and not an extra. **These are Price adder Only and not included in Base Bid price that's why VTC mentioned Amount per Qty**
- Proposed Manufacturing Location shown as Roanoke, VA USA. Please verify that this is the plant that will be used and will not be changed with out approval of Owner if awarded.
- Payment terms is shown as all payment being provided at or before time of shipment. This is not acceptable as retainage is required to verify acceptable transformer prior to final payment. Payment in original documents is preferred however if this is not acceptable to VT, a payment schedule with retainage till transformer is in service should be proposed. **Please see the payment terms in the attached document.**
- Payment is shown as net 30 days. Per Standard terms and conditions additional time is required as payments will required council approval. **Please see the payment terms in the attached document.**
- VT has provided a number of options of warranties that can be provided. However it is not clear which options VT is providing in this bid. Please verify that all the options have been provided with this bid. **12/18 Months Standard Warranty – Included**  
**For 2 year and 5 year price adder are provided in the Price sheet.**

Price for extending warranty:

2 years	\$ 12,625	_____	.(Includes Core and C
5 years	\$ 19,000	_____	.(Includes Core and C

- Different FOB points are called out in the proposal. Please verify that FOB pad as required in the bidding documents is being provided. **INCO Terms - FOB DESTINATION -Geneva, IL 60134**

Note that a response is needed by Monday 1/23/2023 in order to keep the current bidding schedule. Please provide a prompt response at the latest EOB 1/23/2023.

Thanks,  
Phil



**Philip E. Schulz, PE, Principal Electrical Engineer**  
**STANLEYCONSULTANTS**, 225 Iowa Ave, Muscatine, IA 52761  
T: 563.264.6461 | M: 319.572.2639 | stanleyconsultants.com

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Virginia Transformer Corp.  
 Summary of Clarifications to the Terms and Conditions  
 to be negotiated and discussed  
**City of Geneva, IL - M224701A**

Item	Article/Section	
1	Project Manual for Bid Proposal No. 22-02  Agreement between Buyer and Seller  Article 5. Contract Times  Item 5.1  Pg. 1	Time of <del>the Essence</del> <b>material importance</b> . All time limits for Milestones, if any, for the delivery of Goods and the furnishing of Special Services as stated in the Contract Documents are of <del>the essence</del> <b>material importance</b> of the Contract.
	Customer Response	
2	Project Manual for Bid Proposal No. 22-02  Agreement between Buyer and Seller  Article 7. Payment Procedures  Items 7.2.1.& 7.3  Pg. 2	7.2.1.1 Upon receipt of the first Application for Payment submitted in accordance with Paragraph 10.01.A.1 of the General Conditions and accompanied by Engineer's recommendation of payment in accordance with Paragraph 10.02.A of the General Conditions, an amount equal to 10% of the Contract Price, less such amounts as Engineer may determine in accordance with Paragraph 10.02.A.3 of the General Conditions. <b>purchase order 15% of the contract price shall be due.</b> 7.2.1.2 Upon receipt of the second such Application for Payment accompanied by Engineer's recommendation of payment in accordance with Paragraph 10.01.A.2 of the General Conditions, an amount sufficient to increase total payments to Seller to 90% of the Contract Price, less such amounts as Engineer may determine in accordance with Paragraph 10.02.A.3 of the General Conditions <b>drawing submission another 20% shall be due to the Seller (not to exceed thirty days from the date of submission). 55% of the contract shall be due at shipment, not to exceed thirty days from invoice and shipment date.</b> 7.3 Final Payment. Upon receipt of the final Application for Payment accompanied by Engineer's recommendation of payment in accordance with Paragraph 10.06 of the General Conditions, Buyer shall pay the remainder of the Contract Price as recommended by Engineer. <b>of 10% of the contract price shall be made upon energization (not to exceed 60 days from delivery). If product is transferred into storage the full remaining 65% shall be due upon transfer to storage (storage fees may apply).</b>
	Customer Response	
3	Project Manual for Bid Proposal No. 22-02  Standard General Conditions for Procurement Contracts  Article 4. Bonds and Insurance  Item D	The limits of liability for the insurance required by Paragraph 4.02.B shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations: 1. Workers' Compensation, and related coverages under Paragraphs 4.02.B.1 and B.2: a. State: Statutory b. Applicable Federal (e.g., Longshoreman's): Statutory c. Employer's Liability: \$1,000,000 2. Seller's General Liability under Paragraphs 4.02.B.3 through B.6 which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property

	Pg. 00 72 63-4	<p>under the care, custody and control of Seller:</p> <p>a. General Aggregate \$32,000,000</p> <p>b. Products – Completed Operations Aggregate \$31,000,000</p> <p>c. Personal and Advertising Injury \$31,000,000</p> <p>d. Each Occurrence (Bodily Injury and Property Damage) \$31,000,000</p> <p>e. Property Damage liability insurance will provide Explosion, Collapse, and Underground coverages where applicable.</p> <p>f. Excess or Umbrella Liability:</p> <p>1) General Aggregate \$3,000,000</p> <p>2) Each Occurrence \$3,000,000</p> <p>3. Automobile Liability under Paragraph 4.02.B.6:</p> <p>a. Bodily Injury:</p> <p>1) Each person \$21,000,000</p> <p>2) Each Accident \$21,000,000</p> <p>b. Property Damage:</p> <p>1) Each Accident \$21,000,000</p>
	Customer Response	
4	<p>Project Manual for Bid Proposal No. 22-02</p> <p>Standard General Conditions for Procurement Contracts</p> <p>Article 5. Seller's Responsibilities</p> <p>5.03 Laws and Regulations</p> <p>Item B</p> <p>Pg. 00 72 63-4</p>	<p>If Seller furnishes Goods and Special Services knowing or having reason to know that such furnishing is contrary to Laws or Regulations, Seller shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, <del>attorneys</del>, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such performance. It shall not be Seller's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this provision shall not relieve Seller of Seller's obligations under Paragraph 3.03.</p>
	Customer Response	
5	<p>Project Manual for Bid Proposal No. 22-02</p> <p>Standard General Conditions for Procurement Contracts</p> <p>Article 5. Seller's Responsibilities</p> <p>5.08 Seller's Warranties and Guarantees</p> <p>Pg. 00 72 63-5</p>	<p>A. Seller warrants <del>and guarantees</del> to Buyer that the title to the Goods conveyed shall be proper, its transfer rightful, and free from any security interest, lien, or other encumbrance. Seller shall defend, indemnify, and hold Buyer harmless against any liens, claims, or demands contesting or affecting title of the Goods conveyed.</p> <p>B. Seller warrants <del>and guarantees</del> to Buyer that all Goods and Special Services will conform with the Contract Documents, and with the standards established by any Samples approved by Engineer. Engineer shall be entitled to rely on Seller's warranty <del>and guarantee</del>. If the Contract Documents do not otherwise specify the characteristics or the quality of the Goods, the Goods shall comply with the requirements of Paragraph 5.02.B.</p> <p>C. <del>Seller's warranty and guarantee hereunder excludes defects or damage caused by:</del></p> <p><del>1. abuse, improper modification, improper maintenance, or improper operation by persons other than Seller; or</del></p>

		<p><del>2. corrosion or chemical attack, unless corrosive or chemically damaging conditions were disclosed by Buyer in the Contract Documents and the Contract Documents required the Goods to withstand such conditions;</del>  <del>ms2246-00-72-63-6</del></p> <p><del>3. use in a manner contrary to Seller's written instructions for installation, operation, and maintenance; or</del></p> <p><del>4. normal wear and tear under normal usage.</del></p> <p><b>This warranty shall be voided and not extend to any item that upon examination by Seller is found to have been subject to:</b></p> <ul style="list-style-type: none"> <li><b>a) mishandling, misuse, negligence, or accident.</b></li> <li><b>b) storage, installation, operation, testing, or maintenance that either was not in accordance with Seller's specifications, instructions, manuals, or otherwise improper, or contrary to industry standards.</b></li> <li><b>c) tampering as evidenced for example by broken seals, damaged packaging containers, etc.</b></li> <li><b>d) testing of equipment above normally accepted field tests.</b></li> <li><b>e) repair or alteration by anyone other than Seller without Seller's express advance written approval.</b></li> <li><b>f) payment(s) not received per terms of sale.</b></li> </ul> <p><b>Failure to promptly notify Seller in writing upon discovery of any non-conforming items during the warranty period shall void the warranty as to such items. Buyer shall describe any such non-conformity in detail, expressing its position as to return of any article under the remedy provided herein. No returns shall be accepted without prior approval by Seller. No back charges shall be accepted without the prior written consent of Seller's authorized representative. Where a failure cannot be corrected by Seller's reasonable efforts, the parties shall mutually agree upon an equitable adjustment in price. The preceding sets forth the exclusive remedies for claims (except as to title) based on defect whether in contract or tort (including negligence or strict liability) and however instituted. THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND SELLER DISCLAIMS IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.</b></p> <p>D. Seller's obligation to furnish the Goods and Special Services in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Goods and Special Services that are non-conforming, or a release of Seller's obligation to furnish the Goods and Special Services in accordance with the Contract Documents:</p> <ul style="list-style-type: none"> <li>1. observations by Buyer or Engineer;</li> <li>2. recommendation by Engineer or payment by Buyer of any progress or final payment;</li> <li>3. use of the Goods by Buyer;</li> <li>4. any acceptance by Buyer (subject to the provisions of Paragraph 8.02.D.1) or any failure to do so;</li> <li>5. the issuance of a notice of acceptance by Buyer pursuant to the provisions of Article 8;</li> <li>6. any inspection, test or approval by others; or</li> <li>7. any correction of non-conforming Goods and Special Services by Buyer.</li> </ul> <p>E. Buyer shall promptly notify Seller of any breach of Seller's warranties or guarantees.</p> <p>F. Seller makes no implied warranties under this Contract</p>
	Customer Response	

6	<p>Project Manual for Bid Proposal No. 22-02</p> <p>Standard General Conditions for Procurement Contracts</p> <p>Article 5. Seller's Responsibilities</p> <p>5.09 Indemnification</p> <p>Pg. 00 72 63-6</p>	<p>A. To the fullest extent permitted by Laws and Regulations, Seller shall indemnify and hold harmless Buyer and Engineer, and the officers, directors, members, partners, employees, agents, consultants, contractors, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, <del>attorneys</del>, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of Seller's obligations under the Contract Documents, provided that any such claim, cost, loss, or damages attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Goods themselves), including the loss of use resulting therefrom, but only to the extent cause by any negligent act or omission of Seller, or any individual or entity directly or indirectly employed by Seller or anyone for whose acts Seller may be liable.</p> <p>Please insert the following into this section:</p> <p>D. Neither party shall be liable to the other for any incidental, indirect, special, punitive, or consequential damages regardless of whether liability would arise under contract or tort (including negligence and strict liability), warranty, indemnity, or otherwise. Neither party's liability on any claim for loss or damage arising out of this contract or from the performance or breach thereof shall exceed the price of the item giving rise to the claims for loss or damage in the event more than one item is included in this contract/order with distinct pricing being allocated to each item in arriving at the total contract/order price.</p> <p>Seller's liability under this Clause shall be only to the proportionate extent of Seller's fault, negligence, or responsibility and not for any portion of any claim under this Clause that is the fault, negligence or responsibility of other parties including the Indemnified Parties.</p>
	Customer Response	
7	<p>Project Manual for Bid Proposal No. 22-02</p> <p>Standard General Conditions for Procurement Contracts</p> <p>Article 5. Seller's Responsibilities</p> <p>7.01 Changes in the Goods and Special Services</p> <p>Pg. 00 72 63-7</p> <p>Please insert the following as Item D.</p>	<p>D. Seller, in addition to all other rights and remedies under this order or at law, shall have the right to cancel and terminate Buyer's order for breach by Buyer including, but not limited to, if Buyer fails to make payment as due or if Buyer is adjudicated bankrupt, files a petition in bankruptcy, makes an assignment for the benefit of creditors or if action under any law for the relief of debtors is taken. In the event of cancellation and termination of this order for breach of the provisions hereof by Buyer, Seller shall have no further liability to Buyer and Seller shall not be liable for any costs of cancellation, special, incidental or consequential damages (including punitive or exemplary damages) for any cause or of any nature whatsoever and such cancellation and termination. All cancellations or terminations by Seller for Buyer's breach shall be subject to the following cancellation or termination charges:</p> <ul style="list-style-type: none"> <li>• 30 % of order amount after order entry by Seller.</li> <li>• Additional 15 % of order amount after outline drawing completion / submission.</li> <li>• If manufacturing has begun, charges will be based upon commitments for materials and percent completion in addition to the 45% for engineering and order entry.</li> </ul> <p>In the event Buyer cancels its order, Buyer shall be responsible to Seller for cancellation charges in the amounts set forth in the Cancellation &amp; Termination paragraph above, which Buyer shall pay Seller upon such cancellation.</p>
	Customer Response	
8	Project Manual for Bid Proposal No. 22-02	G. Any delays by the customer/Purchaser which result in the loss of the scheduled production slot will be subject to a re-scheduling fee of 30% of the specific order value.

	<p>Standard General Conditions for Procurement Contracts</p> <p>Article 5. Seller's Responsibilities</p> <p>7.02 Changing Contract Price or Contract Times</p> <p>Pg. 00 72 63-7</p> <p>Please insert the following as Item G.</p>	
	Customer Response	
9	<p>Project Manual for Bid Proposal No. 22-02</p> <p>Standard General Conditions for Procurement Contracts</p> <p>Article 8. Buyer's Rights</p> <p>8.01 Inspections and Testing</p> <p>Item B 1.</p> <p>Pg. 00 72 63-7</p>	<p>Buyer or Engineer will visually inspect the Goods upon delivery solely for purposes of identifying the Goods and general verification of quantities and observation of apparent condition <del>in order to provide a basis for a progress payment</del>. Such visual inspection will not be construed as final or as receipt of any Goods and Special Services that, as a result of subsequent inspections and tests, are determined to be non-conforming.</p>
	Customer Response	
10	<p>Project Manual for Bid Proposal No. 22-02</p> <p>Standard General Conditions for Procurement Contracts</p> <p>Article 8. Buyer's Rights</p> <p>8.02 Non-Conforming Goods and Special Services</p>	<p>1.If Buyer elects to reject the Goods in whole or in part, Buyer's notice to Seller will describe in sufficient detail the non-conforming aspect of the Goods <b>and provide Seller time to cure</b>. If Goods have been delivered to Buyer, Seller shall promptly, and within the Contract Times, remove and replace the rejected Goods.</p> <p>E. Seller shall pay all claims, costs, losses, and damages, including but not limited to all fees and charges for re-inspection, retesting and for any engineers, architects, <del>attorneys</del> and other professionals, and all court or arbitration or other dispute resolution costs arising out of or relating to the non-conforming Goods and Special Services. Seller's obligations shall include the costs of the correction or removal and replacement of the non-conforming Goods and the replacement of property of Buyer and others destroyed by the correction or removal and replacement of the non-conforming Goods, and obtaining conforming Special Services from others.</p>

	Item B 1. & E Pg. 00 72 63-8	
	Customer Response	
11	<p>Project Manual for Bid Proposal No. 22-02</p> <p>Standard General Conditions for Procurement Contracts</p> <p>Article 10. Payment</p> <p>Please strike Items 10.02-10.07 and amend 10.01</p> <p>Applications for Progress Payments as follows</p> <p>Pg. 00 72 63-9</p>	<p>A. Seller shall submit to Buyer for Engineer's review Applications for Payment filled out and signed by Seller and accompanied by such supporting documentation as is required by the Contract Documents and also as Buyer or Engineer may reasonably require. The timing and amounts of progress payments shall be as stipulated in the Agreement. <del>1. The first application for Payment will be submitted after review by Engineer of all Shop Drawings and of all Samples required by the Contract Documents. 2. The second Application for Payment will be submitted after receipt of the Goods has been acknowledged in accordance with Paragraph 8.01.B and will be accompanied by a bill of sale, invoice, or other documentation reasonably satisfactory to Buyer warranting that Buyer has rightfully received good title to the Goods from Seller and that, upon payment, the Goods will be free and clear of all liens. Such documentation will include releases and waivers from all parties with viable lien rights. In the case of multiple deliveries of Goods, additional Applications for Payment accompanied by the required documentation will be submitted as Buyer acknowledges receipt of additional items of the Goods.</del> <b>as follows:</b></p> <p><b>15% with the initial order</b></p> <p><b>20% upon drawing submission (not to exceed 30 days from the date of drawing submission)</b></p> <p><b>55% at shipment (not to exceed 30 days from invoice and shipment date)</b></p> <p><b>10% at energization (not to exceed 60 days from delivery)</b></p> <p><b>If transferred into storage the full remaining 65% is due upon transfer to storage (storage fees may apply).</b></p>
	Customer Response	
12	<p>Project Manual for Bid Proposal No. 22-02</p> <p>Standard General Conditions for Procurement Contracts</p> <p>Article 11. Cancellation, Suspension, and Termination</p> <p>Item 11.01 Cancellation</p> <p>Pg. 00 72 63-10</p>	<p>A. Buyer has the right to cancel the Contract, without cause, at any time prior to delivery of the Goods by written notice. Cancellation pursuant to the terms of this paragraph shall not constitute a breach of contract by Buyer. Upon cancellation:</p> <p>1. <del>Buyer shall pay Seller for the direct costs incurred in producing any Goods that Seller has specially manufactured for the Project, plus a fair and reasonable amount for overhead and profit.</del> <b>All cancellations or terminations by Seller for Buyer's breach shall be subject to the following cancellation or termination charges:</b></p> <ul style="list-style-type: none"> <li>• <b>30 % of order amount after order entry by Seller.</b></li> <li>• <b>Additional 15 % of order amount after outline drawing completion / submission.</b></li> <li>• <b>If manufacturing has begun, charges will be based upon commitments for materials and percent completion in addition to the 45% for engineering and order entry.</b></li> </ul> <p><b>In the event Buyer cancels its order, Buyer shall be responsible to Seller for cancellation charges in the amounts set forth in the Cancellation &amp; Termination paragraph above, which Buyer shall pay Seller upon such cancelation.</b></p> <p>2. For Goods that are not specially manufactured for the Project, Seller shall be entitled to a restocking charge of 10 percent of the unpaid Contract Price of such Goods.</p>

	Customer Response	
13	<p>Project Manual for Bid Proposal No. 22-02</p> <p>Standard General Conditions for Procurement Contracts</p> <p>Article 12. Licenses and Fees</p> <p>Items 12.01 A, 12.02 A, 12.03 A</p> <p>Pg. 00 72 63-10</p>	<p>12.01 A. <del>Unless specifically stated elsewhere in the Contract Documents, Seller is not transferring any intellectual property rights, patent rights, or licenses for the Goods delivered. However, in the event the Seller is manufacturing to Buyer's design, Buyer retains all intellectual property rights in such design</del></p> <p>Upon receipt of full payment for the Transformer and conditioned upon Customer not defaulting on its obligations under this Agreement, VTC hereby grants to Customer a perpetual, royalty-free license to use the Intellectual Property Rights of VTC which are incorporated in the Transformer. Such license is limited solely to the use of the Transformer by Customer for the purposes and at the location described in Proposal #. Customer may only transfer this license to a third party upon first providing VTC with a written acknowledgment by such transferee of VTC's ownership of its Intellectual Property Rights contained in the Transformer.</p> <p>12.02 A. Subject to Paragraph 12.01.A, Seller shall indemnify and hold harmless Buyer, Engineer and their officers, directors, members, partners, employees, agents, consultants, contractors, and subcontractors from and against all claims, costs, losses, damages, and judgments (including but not limited to all reasonable fees and charges of engineers, architects, <del>attorneys</del> and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement or alleged infringement of any United States or foreign patent or copyright by any of the Goods as delivered hereunder.</p> <p>12.03 A. Buyer shall indemnify and hold harmless Seller, and its officers, directors, partners, employees, agents, consultants, contractors, and subcontractors from and against all claims, costs, losses, damages, and judgments (including but not limited to all reasonable fees and charges of engineers, architects, <del>attorneys</del> and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement or alleged infringement of any United States or foreign patent or copyright caused by Seller's compliance with Buyer's design of the Goods or Buyer's use of the Goods in combination with other materials or equipment in any process (unless intent of such use was known to Seller and Seller had reason to know such infringement would result).</p>
	Customer Response	
14	<p>Project Manual for Bid Proposal No. 22-02</p> <p>Common Work Results for Electrical</p> <p>Section 26 05 00</p> <p>1.08 Warranty</p> <p>Pg. 3</p>	<p>A. Electrical equipment and components shall be provided with the same duration of warranty, as the overall equipment warranty.</p> <p><b>B. This warranty shall be voided and not extend to any item that upon examination by Seller is found to have been subject to:</b></p> <p>a) <b>mishandling, misuse, negligence, or accident.</b></p> <p>b) <b>storage, installation, operation, testing, or maintenance that either was not in accordance with Seller's specifications, instructions, manuals, or otherwise improper, or contrary to industry standards.</b></p> <p>c) <b>tampering as evidenced for example by broken seals, damaged packaging containers, etc.</b></p> <p>d) <b>testing of equipment above normally accepted field tests.</b></p> <p>e) <b>repair or alteration by anyone other than Seller without Seller's express advance written approval.</b></p> <p>f) <b>payment(s) not received per terms of sale.</b></p> <p><b>Failure to promptly notify Seller in writing upon discovery of any non-conforming items during the warranty period shall void the warranty as to such items. Buyer shall describe any such non-conformity in detail, expressing its position as to return of any article under the remedy provided herein. No returns shall be accepted without prior approval by Seller. No back charges shall be accepted without the prior written consent of Seller's authorized</b></p>

		<p>representative. Where a failure cannot be corrected by Seller’s reasonable efforts, the parties shall mutually agree upon an equitable adjustment in price. The preceding sets forth the exclusive remedies for claims (except as to title) based on defect whether in contract or tort (including negligence or strict liability) and however instituted. THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND SELLER DISCLAIMS IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.</p>
	Customer Response	
15	<p>Project Manual for Bid Proposal No. 22-02</p> <p>Medium Power Transformers</p> <p>Section 33 73 17</p> <p>1.12 Warranty</p> <p>Pg. 4</p>	<p>A. Transformer shall be provided with manufacturer's standard, 1-year warranty from date of delivery.</p> <p>B. Submit separate prices for extending transformer warranty to 2 and 5 years, respectively</p> <p><b>C. This warranty shall be voided and not extend to any item that upon examination by Seller is found to have been subject to:</b></p> <p>a) mishandling, misuse, negligence, or accident.</p> <p>b) storage, installation, operation, testing, or maintenance that either was not in accordance with Seller's specifications, instructions, manuals, or otherwise improper, or contrary to industry standards.</p> <p>c) tampering as evidenced for example by broken seals, damaged packaging containers, etc.</p> <p>d) testing of equipment above normally accepted field tests.</p> <p>e) repair or alteration by anyone other than Seller without Seller's express advance written approval.</p> <p>f) payment(s) not received per terms of sale.</p> <p>Failure to promptly notify Seller in writing upon discovery of any non-conforming items during the warranty period shall void the warranty as to such items. Buyer shall describe any such non-conformity in detail, expressing its position as to return of any article under the remedy provided herein. No returns shall be accepted without prior approval by Seller. No back charges shall be accepted without the prior written consent of Seller’s authorized representative. Where a failure cannot be corrected by Seller’s reasonable efforts, the parties shall mutually agree upon an equitable adjustment in price. The preceding sets forth the exclusive remedies for claims (except as to title) based on defect whether in contract or tort (including negligence or strict liability) and however instituted. THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND SELLER DISCLAIMS IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.</p>
	Customer Response	
16	<p>Requesting the insertion of the following section.</p> <p>Storage</p>	<p>In the event goods are placed in storage at the request of the Purchaser, it is agreed that title will pass to the Purchaser upon placement into storage. Irrespective of anything herein to the contrary, Purchaser will be invoiced for the balance of the purchase price of the goods when they are placed in storage and payment will be due not to exceed 30 days. Risk of loss shall pass to Purchaser who shall be responsible for insuring the goods and Seller shall have no liability for loss or damage when the goods remain in its possession in storage. Purchaser further agrees that for any goods placed in storage, Seller will be provided a minimum of three weeks advanced notice before requested delivery out of storage and delivery will then be made subject to availability of carrier and transportation services.</p>

	Customer Response	
17	Requesting the insertion of the following section.  Surcharge	In the event any components such as, electricity, transportation, freight, labor, core steel, mineral oil etc. are subject to abnormal price increases, and VTC/GTC is not able to otherwise mitigate these increases, during the period between the proposal date and the shipment date, VTC/GTC may pass along those specific incremental cost increases.
	Customer Response	
18	Requesting the insertion of the following section.  Right to strike PO terms	If any purchase order submitted by the owner/purchaser contains or invokes terms or conditions other than this Contract or the Terms and Conditions agreed to between VTC and the purchaser, then Seller/VTC may, without penalty reject said terms and conditions on the purchase order by striking them out.
	Customer Response	

**Schulz, Phil**

---

**From:** Jeff Johnston <jjohnston@otcservices.com>  
**Sent:** Monday, January 23, 2023 11:50 AM  
**To:** Schulz, Phil  
**Cc:** Aaron Holton (aholton@geneva.il.us); Ruiz, Jose  
**Subject:** RE: City of Geneva Proposal REF # 22234

**\*\*\* EXTERNAL EMAIL - Use caution and verify authenticity before trusting any contents. \*\*\***

Phil,  
Please see my responses in red below. Please don't hesitate to contact me should you need any further clarifications.

In review of the OTC bid received for the Business Park III Substation Transformer we have the following concerns that we would like address by OTC.

- OTC provided OTC standard terms and conditions that state that they supersede all other terms and conditions This is not acceptable. Standard terms and conditions provided with original documents are to be used and exceptions of the standard terms and conditions are to be provided by OTC where needed. **Understood and accepted**
- OTC provided budgetary price only for delivery, offloading, assembly and testing. These were to be included in price. OTC to verify these will be actual prices and not budgetary prices.
  - o OTC to clarify if these prices are already included in base price or if these prices would be added to the base price. **Yes prices are included in base price. If any changes need to be made prior to shipment we will notify the city at that time. Due to the fact that transportation costs are fluctuating so much OTC cannot know what transportation prices will be like at time of shipment.**
- OTC has provided a section III-Manufacturing Technical Work-Scope, IV-Processing & Core/Coil Assembly, and V-Testing in proposal. OTC to verify that spec that provided by the City for bidding will supersede this section if a discrepancy is found. OTC to verify anything that is not to follow the spec is shown as an exception (Section VI). **Understood and accepted**
- OTC provided a pricing and warranty term of FOB: Origin. Per contract documents this should be FOB Transformer Pad. OTC to verify FOB Transformer Pad will be provided. **FOB Pad is acceptable**
- Payment terms is shown as all payment being provided at or before time of shipment. This is not acceptable as retainage is required to verify acceptable transformer prior to final payment. Payment in original documents is preferred however if this is not acceptable to OTC, a payment schedule with retainage till transformer is in service should be proposed. **OTC can accept a 10% retainage until transformer has been successfully tested on pad.**
- Payment is shown as net 30 days. Per Standard terms and conditions additional time is required as payments will required council approval. **Understood and accepted**
- OTC stated that Price contained in bid was firm through Feb. 7, 2023. This will not be enough time to finalize review and receive council approval. Please verify OTC will keep price firm through March 10, 2023. **March 10<sup>th</sup> is acceptable.**

Thanks,

**Jeff Johnston**

Transformer & Field Service Sales Manager  
OTC Services Inc.  
1776 Constitution Ave.

P.O. Box 188  
 Louisville, OH 44641  
 (C) 330.205.6140  
 (P) 330.871.2444  
 (F) 330.871.2506  
 (E) [jjohnston@otcservices.com](mailto:jjohnston@otcservices.com)



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**From:** Schulz, Phil <SchulzPhil@stanleygroup.com>  
**Sent:** Wednesday, January 18, 2023 10:39 PM  
**To:** Jeff Johnston <jjohnston@otcservices.com>  
**Cc:** Aaron Holton (aholton@geneva.il.us) <aholton@geneva.il.us>; Ruiz, Jose <jruiz@geneva.il.us>  
**Subject:** City of Geneva Proposal REF # 22234

Jeff,

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- OTC stated that Price contained in bid was firm through Feb. 7, 2023. This will not be enough time to finalize review and receive council approval. Please verify OTC will keep price firm through March 10, 2023. **March 10<sup>th</sup> is acceptable.**

Note that a response is needed by Monday 1/23/2023 in order to keep the current bidding schedule. Please provide a prompt response at the latest EOB 1/23/2023.

Thanks,  
Phil



**Philip E. Schulz, PE, Principal Electrical Engineer**  
**STANLEYCONSULTANTS**, 225 Iowa Ave, Muscatine, IA 52761  
T: 563.264.6461 | M: 319.572.2639 | [stanleyconsultants.com](http://stanleyconsultants.com)

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**RESOLUTION NO. 2023-13**

**AWARDING BID TO OTC SERVICES INC FOR THE CONSTRUCTION AND DELIVERY OF A NEW POWER TRANSFORMER FOR GENEVA BUSINESS PARK III SUBSTATION IN AN AMOUNT OF \$1,155,661.00 AND AUTHORIZE THE CITY ADMINISTRATOR TO APPROVE CHANGE ORDERS NOT TO EXCEED 10% OF THE CONTRACT AMOUNT.**

**BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF GENEVA, KANE COUNTY, ILLINOIS, as follows:**

**SECTION 1:** That the City Administrator is hereby authorized to award, on behalf of the City of Geneva, the OTC Services Inc bid for the construction and delivery of a new power transformer for Geneva Business Park III substation in an amount of \$1,155,661.00 and authorize the city administrator to approve change orders not to exceed 10% of the contract amount, in the form attached hereto.

**SECTION 2:** This Resolution shall become effective from and after its passage as in accordance with law.

**PASSED** by the City Council of the City of Geneva, Kane County, Illinois, this 21<sup>st</sup> day of February, 2023

**AYES: \_\_ NAYS: \_\_ ABSENT: \_\_ ABSTAINING: \_\_ HOLDING OFFICE: \_\_**

Approved by me this 21<sup>st</sup> day of February, 2023.

\_\_\_\_\_  
Mayor

ATTEST:

\_\_\_\_\_  
City Clerk

# **DRAFT Conformed Contract**

**for**

## **Bid Proposal No. 22-02 Business Park III Substation Transformer Procurement**

**between**

**City of Geneva  
Geneva, Illinois**

**and**

**OTC Services, Inc.  
Louisville, Ohio**

**January 2023**



A Stanley Group Company  
Engineering, Environmental and Construction Services - Worldwide

# Project Manual

for

## Bid Proposal No. 22-02 Business Park III Substation Transformer Procurement

City of Geneva  
Geneva, Illinois



*John Sovers*  
\_\_\_\_\_  
Signature

November 21, 2022

License Expiration Date 11/30/2023  
Illinois Firm Registration No. 062-060176



A Stanley Group Company  
Engineering, Environmental and Construction Services - Worldwide



**THIS AGREEMENT** is by and between City of Geneva (Buyer) and OTC Services, Inc. (Seller).

Buyer and Seller, in consideration of the mutual covenants hereinafter set forth, agree as follows:

**Article 1. GOODS AND SPECIAL SERVICES**

- 1.1 Seller shall furnish the Goods and Special Services as specified or indicated in the Contract Documents. The Goods and Special Services to be furnished are described in Section 01 11 00.

**Article 2. THE PROJECT**

- 2.1 The Project for which the Goods and Special Services to be provided under the Contract Documents may be the whole or only a part is generally described as Business Park III Substation Transformer Procurement Project.

**Article 3. ENGINEER**

- 3.1 The Contract Documents for the Goods and Special Services have been prepared by Stanley Consultants, Inc. who is hereinafter called Engineer and who is to assume all duties and responsibilities and have the rights and authority assigned to Engineer in the Contract Documents in connection with the furnishing of Goods and Special Services.

**Article 4. POINT OF DESTINATION**

- 4.1 The place where the Goods are to be delivered is defined in the General Conditions as the Point of Destination and is designated as: Business Park III Substation Transformer Foundation, address 1717 Averill Rd., Geneva, Illinois 60134.

**Article 5. CONTRACT TIMES**

- 5.1 **Time of the Essence.** All time limits for Milestones, if any, for the delivery of Goods and the furnishing of Special Services as stated in the Contract Documents are of the essence of the Contract.
- 5.2 **Days for Submittal of Shop Drawings.** All Shop Drawings and Samples required by the Contract Documents will be submitted to Buyer for Engineer's review within 30 days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions.
- 5.3 **Dates for Delivery of Goods.** The Goods are to be delivered to the Point of Destination and ready for Buyer's receipt of delivery on (or within a period of 15 days prior to or after) September 15, 2024 or the earliest date to which the Seller can commit. Coordinate with Owner on exact date at time of shipment.

Sellers committed delivery date: 102-106 Weeks ARO.

**Article 6. CONTRACT PRICE.**

- 6.1 Buyer shall pay Seller for furnishing the Goods and Special Services in accordance with the Contract Documents an amount in current funds as follows:

6.1.1 A Lump Sum of:

One Million One Hundred Fifty Five Thousand Six Hundred Sixty One Dollars (\$1,155,661)

Pricing for extending warranty:

2 years            \$           Included in base pricing          .  
5 years            \$           Included in base pricing          .

6.1.2 Unit Adjustment Prices. To adjust Lump Sum for changes from quantities required by Contract Documents.

Item	Unit	Unit Adjustment Price
Site services of service engineer	per day	\$ 2,500
Transportation, travel time, and out-of-pocket expenses for travel of service engineer to Site	per round trip	Included in FS pricing.

**Article 7. PAYMENT PROCEDURES.**

7.1 **Submittal and Processing of Payments.** Seller shall submit Applications for Payment in accordance with Article 10 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

7.2 **Progress Payments; Retainage.**

7.2.1 Buyer shall make progress payments on account of the Contract Price on the basis of Seller's Applications for Payment as follows:

7.2.1.1 Upon receipt of the first Application for Payment submitted in accordance with Paragraph 10.01.A.1 of the General Conditions and accompanied by Engineer's recommendation of payment in accordance with Paragraph 10.02.A of the General Conditions, an amount equal to 10% of the Contract Price, less such amounts as Engineer may determine in accordance with Paragraph 10.02.A.3 of the General Conditions.

7.2.1.2 Upon receipt of the second such Application for Payment accompanied by Engineer's recommendation of payment in accordance with Paragraph 10.01.A.2 of the General Conditions, an amount sufficient to increase total payments to Seller to 90% of the Contract Price, less such amounts as Engineer may determine in accordance with Paragraph 10.02.A.3 of the General Conditions.

7.3 **Final Payment.** Upon receipt of the final Application for Payment accompanied by Engineer's recommendation of payment in accordance with Paragraph 10.06 of the General Conditions, Buyer shall pay the remainder of the Contract Price as recommended by Engineer.

**Article 8. INTEREST.**

8.1 All moneys not paid when due as provided in Article 10 of the General Conditions shall bear interest at the rate of 4% per annum.

**Article 9. SELLER'S REPRESENTATIONS.**

9.1 In order to induce Buyer to enter into this Agreement, Seller makes the following representations:

9.1.1 Seller has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

9.1.2 If specified or if, in Seller's judgment, any local condition may affect cost, progress or the furnishing of the Goods and Special Services, Seller has visited the Point of Destination and become familiar with and is satisfied as to the local conditions that may affect cost, progress or the furnishing of the Goods and Special Services.

9.1.3 Seller is familiar with and is satisfied as to all local federal, state and local Laws and Regulations that may affect cost, progress and the furnishing of the Goods and Special Services.

- 9.1.4 Seller has carefully studied and correlated the information known to Seller, and information and observations obtained from Seller's visits, if any, to the Point of Destination, with the Contract Documents.
- 9.1.5 Seller has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Seller has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Seller.
- 9.1.6 The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for furnishing Goods and Special Services.

#### **Article 10. CONTRACT DOCUMENTS.**

- 10.1 The Contract Documents consist of the following:
- 10.1.1 This Agreement (pages 1 to 5, inclusive).
  - 10.1.2 Exhibits to this Agreement (pages 1 to 24, inclusive).
  - 10.1.3 General Conditions (pages 1 to 12, inclusive).
  - 10.1.4 Specifications as listed in Project Manual table of contents.
  - 10.1.5 Drawings consisting of a cover sheet and sheets as listed in Drawing List and in Standard Drawing List.
  - 10.1.6 The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
    - 10.1.7.1 Notice to Proceed (pages \_\_\_\_ to \_\_\_\_, inclusive);
    - 10.1.7.2 Written Amendment(s);
    - 10.1.7.3 Work Change Directive(s);
    - 10.1.7.4 Change Order(s).
- 10.2 The documents listed in paragraph 10.1 are attached to this Agreement (except as expressly noted otherwise above).
- 10.3 There are no Contract Documents other than those listed above in this Article 10.
- 10.4 The Contract Documents may only be amended, modified, or supplemented as provided in paragraph 3.04 of the General Conditions.

#### **Article 11. MISCELLANEOUS.**

- 11.1 **Defined Terms.** Terms used in this Agreement will have the meanings indicated in the General Conditions and the Supplementary Conditions.
- 11.2 **Assignment.** No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound. Specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law). Unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

- 11.3 **Successors and Assigns.** Buyer and Seller each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.
- 11.4 **Severability.** Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Buyer and Seller, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- 11.5 **Waiver.** It is agreed that no waiver or modification of this contract or of any covenant, condition or limitation contained in it shall be valid unless it is in writing and duly executed by the party to be charged with it, and that no evidence of any waiver or modification shall be offered or received in evidence in any proceeding, arbitration, or litigation between the parties arising out of or affecting this contract, or the right or obligations of any party under it, unless such waiver or modification is in writing, duly executed as above. The parties agree that the provisions of this paragraph may not be waived except by a duly executed writing.
- 11.7 **Entire Agreement.** This Agreement states the entire contract between the parties hereto with respect to the subject matter hereof, and all prior and contemporaneous understandings, representations, and agreements are merged herein or superseded hereby. No alterations, modifications, release, or waiver of this contract or any of the provisions hereof shall be effective unless in writing, executed by the parties.

**IN WITNESS WHEREOF**, Buyer and Seller have signed this Agreement in duplicate. One counterpart each has been delivered to Buyer and Seller. All portions of the Contract Documents have been signed or identified by Buyer and Seller or on their behalf.

This Agreement will be effective on \_\_\_\_\_, 20\_\_ (which is the Effective Date of the Agreement).

Buyer:  
\_\_\_\_\_  
\_\_\_\_\_

Seller:  
\_\_\_\_\_  
\_\_\_\_\_

By: \_\_\_\_\_  
(CORPORATE SEAL)

By: \_\_\_\_\_  
(CORPORATE SEAL)

Attest \_\_\_\_\_

Attest \_\_\_\_\_

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

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

(If Buyer is a corporation, attach evidence of authority to sign. If Buyer is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of Agreement.)

Agent for service of process: \_\_\_\_\_  
\_\_\_\_\_

(If Seller is a corporation, attach evidence of authority to sign.)

Designated Representative:

Designated Representative:

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

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

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

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

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

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

\_\_\_\_\_

\_\_\_\_\_

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

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

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

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

END OF SECTION

## ATTACHMENT A

## CERTIFICATION OF COMPLIANCE

The undersigned hereby certifies as follows:

1. That they have the authority and consent to make this certification on behalf of the bidder,  

OTC Services Inc.

---

(Name of Company)
2. That they have knowledge of the City of Geneva Codes pertaining to the disqualification of certain bidders.
3. That they know that the bidder listed above is not disqualified from bidding under the aforementioned sections.
4. That they have knowledge of the City of Geneva ordinances relating to Fair Employment Practices and knows and understands the contents thereof; they certify hereby that it is the policy of the bidder to recruit, hire, train, upgrade, promote, and discipline its employees without regard to race, creed, color, religion, age, sex, or physical or mental impairment.
5. That said bidder is not barred from bidding on the aforementioned contract as a result of a violation of Sections 33E-3 or 33E-4 of Chapter 38 of the Illinois Revised Statutes, 1989.
6. That pursuant to Chapter 24, Section 11-42.1-1 of the Illinois Revised Statutes, the bidder is not delinquent in the payment of any taxes administered by the Department of Revenue.
7. That the contractor (either as an individual or company) agrees to provide a drug free workplace as provided for by the Public Act 86-1459.
8. That all work under this contract shall comply with the Occupational Safety and Health Act (OSHA) of 1975, and all other Federal, State, or Local statutes, rules, or regulations including all City of Geneva Safety Procedures affecting the work done under the contract.
9. That all work done in Kane County, Illinois under this contract shall comply with the Prevailing Wage Rate Act of the State of Illinois, County of Kane, Illinois Revised Statutes, 1987, Chapter 48, par 39s-1, et. seq. and as amended by Public Acts 86-799 and 86-693, in effect at the time work is performed.

ATTACHMENT A (continued)

By submission of this bid, I certify that the bid has been arrived at independently and has been submitted without collusion between or among any vendor of materials, supplies, equipment, or services.

OTC Services Inc.  
Name of Corporation, Partnership, or Proprietor

1776 Constitution Ave, PO Box 188  
Address

Louisville Ohio 44641  
City State Zip

330.871.2444  
Telephone

Bill Woost Director of Sales & Marketing/VP  
Authorized Signature/Title

SUBSCRIBED AND SWORN to before me

this 6th day of July, 2023.

Joan R. Geis  
Notary Public

JOAN R. GEIS  
Notary Public, State of Ohio  
My Commission Expires 07-04-2026

My commission expires: \_\_\_\_\_

**NOTICE: SUBMIT PROPOSALS ON PROPOSAL FORM ONLY**

**FORM OF PROPOSAL**

Name of Bidder OTC Services Inc.

Address of Bidder 1776 Constitution Ave, PO Box 188, Louisville, Ohio 44641

Telephone No. of Bidder 330.871.2444

To: City Administrator  
 City of Geneva  
 22 South First Street  
 Geneva, IL 60134

The undersigned bidder, having examined the specifications of the following proposal, hereby proposes to provide the required labor, services, and materials described in this Form of Proposal, the Instruction to Bidders, and Specifications for the sum or sums stated hereinafter:

**I. LUMP SUM BID PRICE - BUSINESS PARK III SUBSTATION TRANSFORMER PROCUREMENT:**

Design, fabricate, and deliver FOB transformer pad, and completely assemble one 34.5 kV – 12.47 kV, 12/16/20 MVA power transformer as specified for the sum of:

One Million One Hundred Forty Seven Thousand Six Hundred Sixty One (Dollars)

Factory Witness Testing Allowance

	Round Trips	\$/ Round Trip	Total
Travel Allowance – Owner	1	\$2500	\$2,500
Travel Allowance - Engineer	1	\$2500	\$2,500

	Days	\$/ Days	Total
Per Diem Allowance – Owner	1	\$500	\$500
Per Diem Allowance - Engineer	1	\$2500	\$2,500

Option 1: Total Cost (Transformer and Witness Testing)

One Million One Hundred Fifty Five Thousand Six Hundred Sixty One (Dollars)

To be delivered on: 102-106 Weeks ARO, 20    .

Prices contained herein are firm through February 7, 2023.

Price for extending warranty:

2 years           \$ Included in base pricing.  
 5 years           \$ Included in base pricing.

II. UNIT ADJUSTMENT PRICES: Required Base Bid quantities of the items listed below are set forth in the Specifications. If increases or decreases in these quantities occur, the Contract Price is to be adjusted by Change Order on the basis of the following. Adjustment prices are subject to acceptance by Owner, and rejection of one or more adjustment prices will not invalidate acceptance of this Bid.

Item	Unit	Unit Adjustment Price
Site services of Service Engineer	per day	\$ 2,500
Transportation, travel time, and out-of-pocket expenses for travel of Service Engineer to Site	per round trip	Included in FS pricing. \$

The undersigned bidder states that this proposal is made in conformity with the specifications and agrees that, in the event of any discrepancies between any conditions of this proposal and the specifications prepared by the City of Geneva, the provisions of the latter shall prevail.

The undersigned bidder certifies that this proposal is made in good faith, without collusion or connection with any other person or persons bidding for these services, labor and materials.  
 Signed by:

BIDDER: OTC Services Inc.

BY: Bill Woost *Bill Woost*

TITLE: Director of Sales & Marketing/VP

DATE: 1/6/2023

**NOTICE: SUBMIT PROPOSALS ON THIS FORM ONLY**

**Schulz, Phil**

---

**From:** Jeff Johnston <jjohnston@otcservices.com>  
**Sent:** Monday, January 23, 2023 11:50 AM  
**To:** Schulz, Phil  
**Cc:** Aaron Holton (aholton@geneva.il.us); Ruiz, Jose  
**Subject:** RE: City of Geneva Proposal REF # 22234

**\*\*\* EXTERNAL EMAIL - Use caution and verify authenticity before trusting any contents. \*\*\***

Phil,  
Please see my responses in red below. Please don't hesitate to contact me should you need any further clarifications.

In review of the OTC bid received for the Business Park III Substation Transformer we have the following concerns that we would like address by OTC.

- OTC provided OTC standard terms and conditions that state that they supersede all other terms and conditions This is not acceptable. Standard terms and conditions provided with original documents are to be used and exceptions of the standard terms and conditions are to be provided by OTC where needed. **Understood and accepted**
- OTC provided budgetary price only for delivery, offloading, assembly and testing. These were to be included in price. OTC to verify these will be actual prices and not budgetary prices.
  - o OTC to clarify if these prices are already included in base price or if these prices would be added to the base price. **Yes prices are included in base price. If any changes need to be made prior to shipment we will notify the city at that time. Due to the fact that transportation costs are fluctuating so much OTC cannot know what transportation prices will be like at time of shipment.**
- OTC has provided a section III-Manufacturing Technical Work-Scope, IV-Processing & Core/Coil Assembly, and V-Testing in proposal. OTC to verify that spec that provided by the City for bidding will supersede this section if a discrepancy is found. OTC to verify anything that is not to follow the spec is shown as an exception (Section VI). **Understood and accepted**
- OTC provided a pricing and warranty term of FOB: Origin. Per contract documents this should be FOB Transformer Pad. OTC to verify FOB Transformer Pad will be provided. **FOB Pad is acceptable**
- Payment terms is shown as all payment being provided at or before time of shipment. This is not acceptable as retainage is required to verify acceptable transformer prior to final payment. Payment in original documents is preferred however if this is not acceptable to OTC, a payment schedule with retainage till transformer is in service should be proposed. **OTC can accept a 10% retainage until transformer has been successfully tested on pad.**
- Payment is shown as net 30 days. Per Standard terms and conditions additional time is required as payments will required council approval. **Understood and accepted**
- OTC stated that Price contained in bid was firm through Feb. 7, 2023. This will not be enough time to finalize review and receive council approval. Please verify OTC will keep price firm through March 10, 2023. **March 10<sup>th</sup> is acceptable.**

Thanks,

**Jeff Johnston**

Transformer & Field Service Sales Manager  
OTC Services Inc.  
1776 Constitution Ave.

P.O. Box 188  
 Louisville, OH 44641  
 (C) 330.205.6140  
 (P) 330.871.2444  
 (F) 330.871.2506  
 (E) [jjohnston@otcservices.com](mailto:jjohnston@otcservices.com)



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**From:** Schulz, Phil <SchulzPhil@stanleygroup.com>  
**Sent:** Wednesday, January 18, 2023 10:39 PM  
**To:** Jeff Johnston <jjohnston@otcservices.com>  
**Cc:** Aaron Holton (aholton@geneva.il.us) <aholton@geneva.il.us>; Ruiz, Jose <jruiz@geneva.il.us>  
**Subject:** City of Geneva Proposal REF # 22234

Jeff,

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Note that a response is needed by Monday 1/23/2023 in order to keep the current bidding schedule. Please provide a prompt response at the latest EOB 1/23/2023.

Thanks,  
Phil



**Philip E. Schulz, PE, Principal Electrical Engineer**  
**STANLEYCONSULTANTS**, 225 Iowa Ave, Muscatine, IA 52761  
T: 563.264.6461 | M: 319.572.2639 | [stanleyconsultants.com](http://stanleyconsultants.com)

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DATA SHEETS 3-PHASE, 2-WINDING TRANSFORMER		Equipment Name: Tag No.:	
DESCRIPTION	UNITS	SPEC DATA	VENDOR DATA
Manufacturer	-	By Manufacturer	OTC Services Inc.
Catalog/Serial No.	-	By Manufacturer	22234
<b>SITE CONDITIONS</b>			
24 Hr. Avg. Ambient Design Temperature	°C	30	30
Maximum Ambient Temperature	°C	40	40
Minimum Ambient Temperature	°C	-30	-30
Site Elevation Above Sea Level	ft	Less than 3,300 ft	Less than 300 ft
Seismic Requirements			
Site Class			
S <sub>DS</sub> – Design Spectral Ground Acceleration at Short Periods (0.2 Seconds)			
I <sub>p</sub> – Component Importance Factor			
R <sub>p</sub> – Structure Response Modification Factor			
a <sub>p</sub> – Component Amplification Factor			
Specific local Building Code and specific sections on seismic requirements used in equipment design	---	By Manufacturer	N/A
Symmetrical short circuit current			
Limited Only by transformer impedance (ANSI standard)	Y/N	Y	Y
Minimum system short circuit current and X <sub>0</sub> /X <sub>1</sub>	kA/#.#	NONE	None
<b>CHARACTERISTICS</b>			
Operating Frequency	Hz	60	60
Design Temperature Rise	°C	55	50
Maximum Temperature Rise	°C	65	65
Cooling Class	-	KNAN/KNAF/KNAF	KNAN/KNAF/KNAF
Capacity at Design Temp Rise	MVA	12/16/20	12/16/20
Capacity at Maximum Temp Rise	MVA	13.4/17.9/22.4	13.4/17.9/22.4
Impedance (Z%/ %Tolerance)	Z%/+x	7.5%/+-7.5%	7.5%/+-7.5%
HV to LV impedance at nominal voltage on Base Rating	Z%/+x	7.5%/+-7.5%	7.5%/+-7.5%
HV to Tertiary at nominal voltage on Base Rating	%	NONE	None
LV to Tertiary at nominal voltage on Base Rating	%	NONE	None
Transformer X/R Ratio	-	By Manufacturer	18.723
Core and Coil Construction Type	-	Circular	Circular
Type of Material Used in Coils	-	Cu	Cu
<b>SYSTEM CONFIGURATION</b>			
Utilized as a Unit Auxiliary Transformer	Y/N	N	N
Utilized as a Generator Step-Up Transformer	Y/N	N	N
Utilized as a Substation Transformer	Y/N	Y	Y
Utilized as a Station Service Transformer	Y/N	N	N
<b>WINDINGS</b>			
High Voltage:			
Nominal Rated Voltage	kV	34.5	34.5
Basic Impulse Level	kV BIL	200	200
Connection	D or Y	D	D
Low Voltage:			
Nominal Rated Voltage	kV	12.47	12.47
Basic Impulse Level	kV BIL	110	110

DATA SHEETS 3-PHASE, 2-WINDING TRANSFORMER		Equipment Name: Tag No.:	
DESCRIPTION	UNITS	SPEC DATA	VENDOR DATA
Connection	D or Y	Y	Y
Displacement Between HV and LV Windings	deg	30° (ANSI std)	30 (ANSI std)
Tertiary:		NONE	None
Nominal Rated Voltage	kV	N/A	N/A
Capacity (MVA)	Xx/xx/xx	N/A	N/A
External Connection	Y/N	N/A	N/A
Basic Impulse Level (External connection)	kV	N/A	N/A
Connection	----	N/A	N/A
Neutral:			
Basic Impulse Level	kV BIL	110	110
Connection (Un-Grd, Solid, H-Res, L-Res)	-	Solid	Solid
Neutral Insulation (Uniform, Graded)	-	Graded	Graded
<b>BUSHINGS</b>			
High Voltage:			
Manufacturer	-	By Manufacturer	ABB
Type	-	Porcelain	Porcelain
Location	-	Cover	Cover
Segment	-	3	3
HV bushing BIL	kV	200	200
Minimum creepage distance	In	35	35
Low Voltage:			
Manufacturer	-	By Manufacturer	ABB
Type	-	Porcelain	Porcelain
Location	-	Side	Side
Segment	-	1	1
LV bushing BIL	kV	110	110
Minimum creepage distance	In	11	11
Tertiary Voltage:		NONE	None
Manufacturer	-	N/A	N/A
Type	-	N/A	N/A
Location	-	N/A	N/A
Segment	-	N/A	N/A
Tertiary bushing BIL	kV	N/A	N/A
Minimum creepage distance	In	N/A	N/A
Manufacturer	-	N/A	N/A
Type	-	N/A	N/A
Location	-	N/A	N/A
Segment	-	N/A	N/A
Neutral bushing BIL	kV	110	110
Minimum creepage distance	In	11	11
Location		Same as LV	Same as LV
<b>CURRENT TRANSFORMERS</b>			
High Voltage (Bushing Current Transformers):			
Quantity on Each Bushing	Qty	2	2
Ratio of Each CT	Pri/Sec	600:5	600:5
Multi-Ratio	Y/N	Y	Y

<b>DATA SHEETS</b>		<b>Equipment Name: Tag No.:</b>	
<b>3-PHASE, 2-WINDING TRANSFORMER</b>			
<b>DESCRIPTION</b>	<b>UNITS</b>	<b>SPEC DATA</b>	<b>VENDOR DATA</b>
Accuracy Class	-	C800	C800
<b>Low Voltage (Bushing Current Transformers)::</b>			
Quantity on Each Bushing	Qty	1	1
Ratio of Each CT	Pri/Sec	1200:5	1200:5
Multi-Ratio	Y/N	Y	Y
Accuracy Class	-	C800	C800
<b>Tertiary Voltage (Bushing Current Transformers)::</b>			
Quantity on Each Bushing	Qty	NONE	None
Ratio of Each CT	Pri/Sec	N/A	N/A
Multi-Ratio	Y/N	N/A	N/A
Accuracy Class	-	N/A	N/A
<b>Tertiary (Internal Current Transformers):</b>			
Quantity on Each Winding	Qty	NONE	None
Ratio of Each CT	Pri/Sec	N/A	N/A
Multi-Ratio	Y/N	N/A	N/A
Accuracy Class	-	N/A	N/A
<b>Neutral Bushing (Bushing Current Transformers)::</b>			
Quantity on Each Bushing	Qty	1	1
Ratio of Each CT	Pri/Sec	600:5	600:5
Multi-Ratio	Y/N	Y	Y
Accuracy Class	-	C800	C800
<b>CONNECTIONS</b>			
<b>High Voltage (Select one):</b>			
Overhead Cable – Open Air	Y/N	Y	Y
Underground Cable – Open Air	Y/N	N	N
Underground Cable - Enclosed	Y/N	N	N
Nonsegregated Bus Duct	Y/N	N	N
Segregated Bus Duct	Y/N	N	N
Isolated Phase Bus Duct	Y/N	N	N
Gas insulated Bus Duct	Y/N	N	N
<b>Low Voltage Side (Select one):</b>			
Overhead Cable – Open Air	Y/N	N	N
Overhead Cable – Cable Bus	Y/N	N	N
Underground Cable – Open Air	Y/N	N	N
Underground Cable – Enclosed	Y/N	Y	Y
Nonsegregated Bus Duct	Y/N	N	N
Segregated Bus Duct	Y/N	N	N
Isolated Phase Bus Duct	Y/N	N	N
<b>Tertiary (Select one for external connected only):</b>			
Overhead Cable – Open Air	Y/N	N/A	N/A
Underground Cable – Open Air	Y/N	N/A	N/A
Underground Cable – Enclosed	Y/N	N/A	N/A
Nonsegregated Bus Duct	Y/N	N/A	N/A
<b>ARRESTERS</b>			
High Voltage Side	Y/N	Y	Y
Manufacturer	-		

DATA SHEETS 3-PHASE, 2-WINDING TRANSFORMER		Equipment Name: Tag No.:	
DESCRIPTION	UNITS	SPEC DATA	VENDOR DATA
MCOV Rating	kV	22	22
Location (Segment)	---	3	3
Discharge monitor	Y/N	N	N
Low Voltage Side	Y/N	N	N
Manufacturer	-	N/A	N/A
MCOV Rating	kV	N/A	N/A
Location (Segment)	---	N/A	N/A
Discharge monitor	Y/N	N/A	N/A
Tertiary (External connection only):	Y/N	NONE	NONE
Manufacturer	-	N/A	N/A
MCOV Rating	kV	N/A	N/A
Location (Segment)	---	N/A	N/A
Discharge monitor	Y/N	N/A	N/A
<b>TAP CHANGER</b>			
De-energized taps:	Y/N	Y	Y
Tap Location	HV/LV	HV	HV
No. of Steps Above Nominal (Std. 2 x +2.5%)	Qty / %	2 x +2.5%	2 x +2.5%
No. of Steps Below Nominal (Std. 2 x -2.5%)	Qty / %	2 x -2.5%	2 x -2.5%
Load Tap Changer:	Y/N	Y	Y
Tap Location	HV/LV	LV	LV
No. of Steps Above Nominal (Std. 16 x +5/8%)	Qty / %	16 / +5/8	16 / +5/8
No. of Steps Below Nominal (Std. 16 x -5/8%)	Qty / %	16 / -5/8	16 / -5/8
Digital Tap Changer Control	Y/N	Y	Y
Automatic, Manual, or Both	-	Both	Both
Tap Changer Control Communications Connection		Fiber Ethernet	Fiber Ethernet
Transformer Paralleling Equipment	Y/N	N	N
<b>Preservation System (Select One):</b>			
Conservator Tank or Inert Gas Pressure System	-	Inert Gas Pressure	Inert Gas Pressure
Conservator tank location	Segment	N/A	N/A
<b>LIQUID</b>			
Total Gallons in System	gal	By Manufacturer	3700
Qty shipped Separately	gal	By Manufacturer	N/A
Weight of Liquid as Shipped/Quantity of Liquid	Lb./Gal.	By Manufacturer	27750/3700
Proposed Method of Liquid Shipment	-	By Manufacturer	In Transformer
<b>COOLING</b>			
Radiator/Cooler Location – Segment (1,2,3,4)	-	1,3	1,3
Cooling Equipment Fans:			
Quantity of Fan Motors per Stage	Qty	By Manufacturer	3
Horsepower rating of each motor	Hp	By Manufacturer	1/3
Rated Voltage and Phases	V, ph	240V, 1 ph	240V, 1 ph
Full Load Current	A	By Manufacturer	1.8
Cooling Equipment Pumps:			
Quantity of Pump Motors per Stage	Qty	N/A	N/A
Horsepower rating of each motor	Hp	N/A	N/A
Rated Voltage and Phases	V, ph	N/A	N/A
Full Load Current	A	N/A	N/A

<b>DATA SHEETS</b>		<b>Equipment Name: Tag No.:</b>	
<b>3-PHASE, 2-WINDING TRANSFORMER</b>			
<b>DESCRIPTION</b>	<b>UNITS</b>	<b>SPEC DATA</b>	<b>VENDOR DATA</b>
<b>Guaranteed Power Requirements of Cooling Equipment</b>			
First Stage	kW	By Manufacturer	0
Second Stage	kW	By Manufacturer	1
Third Stage	kW	By Manufacturer	2
<b>Maximum Expected Sound Level at Max. MVA Rating and All Fans Operating at:</b>			
1 foot	dBa	By Manufacturer	70
6 feet	dBa	By Manufacturer	69
<b>CONTROL CABINET</b>			
Location – Segment (1,2,3,or4)	-	2	2
Ac Auxiliary Power Voltage supplied to Control Cabinet	VAC	120/240V, 1 ph	120/240V, 1 ph
Qty of Ac Auxiliary Power sources supplied to Control Cabinet	1,2	1	1
Power Required for AC Auxiliary Power Source	kVA	By Manufacturer	3
Dc Control Power Voltage supplied to Control Cabinet	VDC	125	125
Dc Rated Continuous Power Required	A	By Manufacturer	10
Dc Rated Peak Power Required	A		15
<b>ACCESSORIES</b>			
Nitrogen Pressurization Tanks	Y/N	Y	Y
Special Paint	Y/N	N	N
Ground Resistor	Y/N	N	N
Automatic Transfer Switch for Second Power Supply	Y/N	N	N
Provisions (only) for Gas Analyzer	Y/N	N	N
Wheels	Y/N	N	N
100% spare gaskets	Y/N	N	N
<b>TESTS</b>			
ANSI Routine Tests	Y/N	Y	Y
Winding Insulation	Y/N	Y	Y
Core Insulation	Y/N	Y	Y
Insulation Power Factor	Y/N	Y	Y
Auxiliary Cooling Losses	Y/N	Y	Y
Single Phase Excitation & Rated Voltage	Y/N	Y	Y
No Load Losses & Excitation Current	Y/N	Y	Y
Zero Sequence Impedance	Y/N	N	N
Temperature Rise	Y/N	By Manufacturer	Y
Low Frequency on Auxiliary Devices	Y/N	Y	Y
Lightning Impulse	Y/N	By Manufacturer	Y
Front of Wave Impulse	Y/N	N	N
Switching Impulse	Y/N	N	N
Partial Discharge	Y/N	N	N
Audible Noise	Y/N	Y	Y
Dissolved Gases in Liquid Analysis	Y/N	Y	Y
Sweep Frequency Response Analysis (SFRA)	Y/N	Y	Y
<b>EFFICIENCY</b>			
At 100% of Maximum MVA	%	By Manufacturer	
At 75% of Maximum MVA	%	By Manufacturer	
At 50% of Maximum MVA	%	By Manufacturer	

<b>DATA SHEETS</b> <b>3-PHASE, 2-WINDING TRANSFORMER</b>		Equipment Name: Tag No.:	
DESCRIPTION	UNITS	SPEC DATA	VENDOR DATA
<b>VOLTAGE REGULATION</b>			
100% of Maximum MVA at:			
Unity Power factor	%	By Manufacturer	0.6805
80% lagging power factor	%	By Manufacturer	4.971
80% leading power factor	%	By Manufacturer	3.971
Excitation Current at 100% Rated Voltage and Max. MVA	%	By Manufacturer	0.3
<b>GUARANTEED LOSSES</b>			
Auxiliary Losses at full load and Max. MVA rating	kW	By Manufacturer	2
No-Load Losses at 100% Rated Voltage	kW	By Manufacturer	10
Load Losses at Max. MVA Rating	KW	By Manufacturer	170
<b>LOSS EVALUATION</b>			
Auxiliary Losses	\$/kW	130.53	130.53
No-Load Losses	\$/kW	1740.27	1740.27
Load Losses	\$/kW	502.58	502.58
<b>DIMENSIONS (APPROXIMATE)</b>			
Overall Height	in.	By Manufacturer	150
Overall Width	in.	288 (Max.)	195
Overall Depth	in.	215 (Max.)	185
Transformer Base Width	in.	189 (Max.)	140
Transformer Base Depth	in.	69 (Max.)	69
Height over Tank	in.	By Manufacturer	110
Height for Untanking	in.	By Manufacturer	250
Minimum Distance Between Surge Arresters	in.	By Manufacturer	10
Recommended Min. Space Between Transformer and Adjacent Structures	in.	By Manufacturer	80
<b>WEIGHTS (APPROXIMATE)</b>			
Core and Coil	lbs.	By Manufacturer	37200
Tank and Fittings	lbs.	By Manufacturer	24000
Liquid	lbs.	By Manufacturer	27750
Total Transformer With Liquid	lbs.	By Manufacturer	88950
Total Shipping Weight	lbs.	By Manufacturer	79600
Weight of Largest Piece for Handling	lbs.	By Manufacturer	79600
<b>DELIVERY</b>			
Method of Shipment (truck, rail, barge, ship)	-	By Manufacturer	Truck
Total No. of Weeks from Award of Contract, FOB site	wks	By Manufacturer	102-106 Weeks ARO
Submittal of Review Drawings After Award of Contract	wks	By Manufacturer	20-22 Weeks ARO
Manufacturing Time after Receipt of Approved Drawings	wks	By Manufacturer	82-84 Weeks ARO
<b>SPECIAL REQUIREMENTS</b>			
List parts Requiring Field Assembly	-	By Manufacturer	Radiators HV Bushings LV Throat surge arresters.
Describe Extent of Field Welding	-	By Manufacturer	None

DATA SHEETS 3-PHASE, 2-WINDING TRANSFORMER		Equipment Name: Tag No.:	
DESCRIPTION	UNITS	SPEC DATA	VENDOR DATA
List of Required Maintenance Tools Furnished With Equipment	-	By Manufacturer	None required
List of Required Spare Parts Furnished With Equipment - High Side Bushing with Gasket – Qty. 1 - Low Side Bushing with Gasket – Qty. 1 - LTC Tank Gaskets – Qty. 1 set		Manufacturer to provide \$/part	Spare kit included in base.
List any Special Considerations Maximum fault current available from tertiary in kA from both HV and LV windings:	-		None

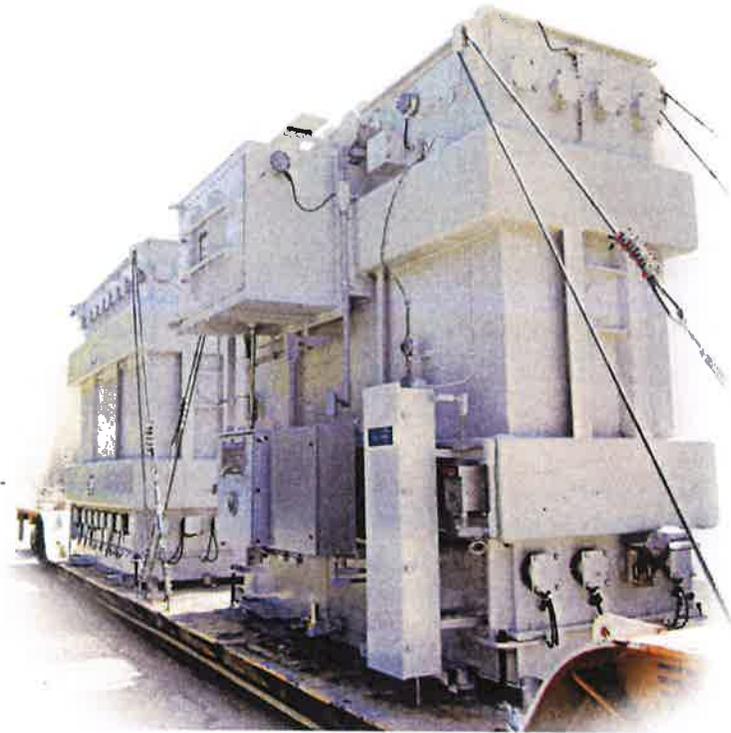
END OF SECTION

- 1) Philip E. Schulz
- 2) Seth G. Weiss

Proposal for  
City of Geneva, IL

REF: #22-02

Business Park III Substation Transformer  
Procurement



OTC Contact: Jeff Johnston

Phone: 330-871-2444

Email: [jjohnston@otcservices.com](mailto:jjohnston@otcservices.com)

Proposal Reference  
Number: 22234



## Powering your transformer needs

with experience,  
craftsmanship, and  
technology.



CUSTOMER: CITY OF GENEVA, IL

DATE: 01/09/2023

TECHNICAL DESCRIPTION: NEW MANUFACTURE OF (1) TRANSFORMER

OEM: OTC

1216/20//22.4 MVA

CLASS KNAN/KNAF/KNAF @ 55/65°C RISE

3 PHASE

60 HERTZ

HV: 34.5Δ kV

200 kV BIL

Taps: +/- 2 x 2.5%

LV: 12.47Y/7.2 kV with LTC

110 kV BIL

+/-16 POS x 0.625% (Reduced capacity)

7.5 %IZ @ 12 MVA and 34.5-12.47 kV connection Rated Voltage Tap.

## I. TRANSPORTATION, RIGGING, AND FIELD SERVICE OPTIONS

**\$19,400 – Budgetary Price** for outbound freight from OTC Services in Louisville, OH to Geneva, IL. Unit to ship oil filled, less HV bushings, less arresters, less LV throat, and less radiators. Free and clear access must be provided for unloading purpose; any delays may result in additional charges. 3-axis GPS impact recorder to be provided.

**\$12,500 – Budgetary Price** for on-site crane services for unloading of transformers and placing onto the pad. Free and clear access must be provided (35 ft.). This price does not include a jack and slide of the transformer onto the pad.

**\$22,750 – Budgetary Price** for assembly of transformer, top off oil and field-testing. Free and clear access to the substation is required. Labor to be non-union. The price is based of 7 days a week, 10-12-hour workdays.

## II. MANUFACTURING SERVICES & OPTIONS

**\$1,093,011** – This proposal includes the complete design and manufacturing of a new three phase transformer according to the latest ANSI/IEEE standards and customer supplied specification. Transformers to be manufactured in Louisville, Ohio with all workmanship and material of the highest quality. All material shall be free of defects affecting appearance, serviceability, fit form, or function of equipment. OTC Services is a certified ISO 9001:2015 facility. The transformer will be of copper conductor, circular disc design with all insulation materials being of Weidmann. Details of the transformer can be found under “Manufacturing Technical Work-Scope” in this proposal. All drawings to be submitted to customer for approval 20-22 weeks ARO.

**Lead Time: 82-84 Weeks from drawing approval.**

**Warranty 60 months energized, 66 months from shipment.**

**(OPTIONAL) \$8,400 – Spare Part Lot – HV/LV Bushing, HV/LV Arrester.**

**Gtd. No Load Loss: 10 kW @ 100% Rated Voltage**

**Gtd. Load Loss: 48 kW @ 12 MVA, at 34.5-12.47 kV Connection Rated Voltage Tap and 75°C**

**Gtd. Aux. Loss: 2.0 kW @ 22.4 MVA**

### III. MANUFACTURING TECHNICAL WORK-SCOPE

1. Tank:
  - a. Tank to be absolutely oil tight with all fittings in place.
  - b. All seams and joints to be welded inside and out.
  - c. Tank cover shall be sloped to prevent water from standing on the cover.
  - d. Ground Pads to be located at base.
  - e. Core ground(s) to be brought out by "spark-plug" with a NEMA box for ease of checking core ground(s).
  - f. Welded lid with lugs for future lid removal.
  - g. Raised bolted manhole (2) cover with 20" min. access point(s).
  - h. Tank to be pressured tested and rated for full vacuum.
  - i. New gaskets include Nitrile, Cork/Nitrile & Viton where required.
  - j. Jacking pads with at least 15" clearance to bottom of the base with skid plates to be installed.
  - k. Fall protection plate to be mounted on lid.
2. Cooling:
  - a. New galvanized removable radiators with associated shut-off valves shall be provided.
3. Tank Finish:
  - a. Tank to be properly prepared, primed and painted per the customer supplied specification.
  - b. Touch up paint to be provided.
4. Tank Accessories:
  - a. The nameplate shall be stainless steel with contrasting etching with appropriate nameplate data mounted onto the tank wall.
  - b. The following gauges will be provided:
    - i. Liquid Level indicator.
    - ii. Liquid temperature indicator.
    - iii. Winding temperature.
    - iv. Mechanical pressure relief device.
    - v. Rapid Pressure relay to be provided.
    - vi. Pressure vacuum gauge to be provided.
    - vii. A weatherproof control cabinet with provision for padlocking.
    - viii. Gas-sampling valve.
    - ix. All wires and leads on the exterior shall be enclosed in rigid metallic conduit. No wires or leads shall be left exposed to the elements unless specifically designed for the environment and the owner approves.
5. DETC:
  - a. 5 position tap changer to be provided.
  - b. Handle location to be shown on approval drawings.
6. Bushings:
  - a. Shall be light gray ANSI color No. 70
  - b. HV Bushings to be draw lead with 200 BIL rating.
    - i. ABB
    - ii. 034Z0412UT
    - iii. kV: 34

- c. LV Bushings to be bottom connect with 110 BIL rating.
  - i. ABB
  - ii. 015J0200AS
  - iii. kV: 15
- d. NEMA 4-hole terminals to be provided.
- 7. Current Transformers:
  - a. CT's to be provided as requested in customer supplied specification.
- 8. Arresters:
  - a. HV:
    - i. Ohio Brass
    - ii. Type: EVP0022003001
    - iii. 22 kV MCOV
  - b. LV:
    - i. Ohio Brass
    - ii. Type: EVP0010003001
    - iii. 10.2 kV MCOV
- 9. Oil:
  - a. Midel 7131 to be provided.
  - b. Transformer to ship with nitrogen blanket.
  - c. Nitrogen Preservation System to be included.
- 10. Core and Coil
  - a. Transformer windings shall be suitable clamped with mechanical means to prevent shifting under short circuit conditions.
  - b. Core design to be step lap.
  - c. Core to be circular construction.
- 11. Load Tap Changer
  - a. Reinhausen RMV-II load tap changer installed in a separate tank mounted on the main transformer tank.
  - b. Reinhausen MD3 drive cabinet to be provided.
  - c. LTC shall provide automatic and manual tap changing under load while maintaining load continuity during the transitions between positions and designed to minimize arcing. Contacts shall be self-aligning with copper-tungsten arcing surfaces.
  - d. Voltage regulation shall be plus 10% and minus 10% in 32 5/8% steps (16 above and 16 below) rated voltage.
  - e. Contact life shall be warranted for a minimum 500,000 operations at full load current.
  - f. Operations counter located in the control cabinet to record tap changes.
  - g. Liquid level indicator with low level alarm contacts.
  - h. Raise and lower switches for manual operation.

#### **IV. PROCESSING & CORE/COIL ASSEMBLY**

1. The completed core and coil assembly will be thoroughly dried through the use of heat and vacuum until an insulation power factor of less than 0.5% is achieved.
2. All Core Grounds will be brought out by Auburn F-310H spark-plug and clearly marked.
3. The fully assembled transformer shall be pressure tested and monitored for 24 hours.

#### **V. TESTING**

1. All tests performed on the transformer shall be in accordance with the latest revision of ANSI/IEEE specifications (ANSI C57.12.00, ANSI C57.12.90).

## **VI. CLARIFICATIONS AND EXCEPTIONS**

1. The performance bond will cover the supply and installation of the transformer and 12 months of the warranty.
2. Freight, Crane, and Field Service Price to be determined at time of shipment.
3. Customer Purchase Order must reflect OTC Proposal Reference Number.
4. Proposed delivery is based on what we know at the time of quote date but is subject to change due to the COVID-19 situation.
5. Terms and Conditions must be approved by each party prior to acceptance of purchase order.
6. OTC Services is not responsible for consequential or liquidated damages. OTC will only honor costs initiated after OTC Services authenticates a warranty claim.
7. Actual calculations for short circuit analysis utilizing the Anderson Program can be provided at time of design completion.
8. Drawings to be submitted 20 to 22 weeks ARO.
9. Lead times are based on current shop load.
10. Cancellation Charges Apply as Follows:
  - 25% - Engineering Complete
  - 50% - Purchasing Complete
  - 75% - Material Received
  - 100% - Within 6 weeks of acknowledged shipment date.

## **VII. PRICING AND WARRANTY TERMS**

FOB: ORIGIN

Price Validity: 30 days

Payment term: 25% with Purchase Order, 25% with material order, 50% after completion of factory testing. Net 30 days. Not to exceed 60 days after delivery. This payment schedule may be negotiated. No Sales or use taxes have been calculated on any of the pricing provided. The Customer will be responsible for any taxes associated with the purchase of this service contract or shall supply a tax-exempt certificate for our records.

Pricing to be subject to cost-based escalation in comparing actual incurred costs to initial bid costs. OTC uses the Bureau of Labor Statistics (series ID: PCU335311335311) for the purpose of calculating escalation cost for long term contracts. Escalation cost will be calculated from the date the order is released for shipment.

## GENERAL TERMS AND CONDITIONS OF SALE

The Terms and Conditions of Sales set forth herein, and Supplements which may be attached hereto, including but not limited to the Terms and Condition set forth at <http://otcservices.com> (collectively "Agreement"), constitute the full and final expressions of the contract for repairing, and/or refurbishing equipment (hereinafter referred to as the "Equipment") and/or providing services (hereinafter referred to as the "Services"), as described in the quotation between OTC Services (hereinafter referred to as "Seller") and the Customer and supersedes all prior quotations, purchase orders, correspondence or communications whether written or oral between the Seller and the Customer notwithstanding any contrary language in the Customer's purchase order or other acceptance. Customer shall be bound by these Terms and Conditions of Sales when it returns a purchase order or otherwise indicates acceptance of this contract, or when it accepts delivery from Seller of the Equipment or agrees to have Seller proceed with Services.

**ACCEPTANCE OF THE CONTRACT IS EXPRESSLY LIMITED TO ACCEPTANCE OF THE TERMS AND CONDITIONS OF SALES AS SET FORTH IN THE ABOVE PARAGRAPH AND ANY ADDITIONAL OR DIFFERENT TERMS PROPOSED BY CUSTOMER ARE REJECTED UNLESS EXPRESSLY AGREED TO IN WRITING BY SELLER.**

No contract shall exist except as herein provided. No statement, representation or warranty not contained herein shall be binding on the Seller unless made in writing by an officer or other authorized representative of the Seller. Prior dealing, usage of the trade or a course of performance shall not be relevant to determine the meaning of this agreement even though the accepting or acquiescing party had knowledge of the nature of the performance and opportunity for objection. Whenever a term defined by the Uniform Commercial Code is used herein, the definition contained in the Code shall apply.

### 1. Orders

All orders are subject to acceptance by an authorized representative of Seller, OTC Services, Louisville, OH. The prices, charges, discounts, terms of sale and other provisions referred to or contained in this Agreement shall apply to any and all Equipment and Services as listed on the accompanying sales order.

### 2. Inspection and Acceptance of Products

Customer agrees that it shall inspect the Equipment immediately after receipt and promptly (in no event later than fifteen (15) days after receipt) notify Seller in writing of any claimed non-conformity or defect. Customer further agrees that failure to give such prompt notice, or the initial energization of the equipment ("Delivery Date") shall constitute acceptance. Acceptance shall be final and Customer waives the right to revoke acceptance for any reason, whether or not known by Customer at the time of such acceptance. The giving of any such notice by Customer shall automatically cause the provisions of Seller's warranty to apply and govern the rights, obligations and liabilities of the parties with respect to such claimed non-conformity or defect. Under no circumstances shall rejection give rise to any liability of Seller for incidental or consequential damages or losses of any kind. Seller does not guarantee that it will accept returned goods. Customer is responsible for all return shipping costs and risk of loss until the returned equipment is delivered to and accepted at Seller's place of business.

### 3. Warranty

Seller warrants that equipment delivered by it will be of the kind and quality described in the order or contract accepted by Seller, and will be free of material defects in workmanship and material supplied by Seller as of the delivery date, which warranty shall be effective for a period of twelve (12) months for repaired and refurbished equipment, or for a period of sixty (60) months for new equipment (the "Equipment Warranty Period"). Seller further warrants that the Services provided by it will be of the kind and quality described in the order or contract accepted by Seller and will be free of material defects in workmanship as of the date of completion of the performance of the Services and for a period of twelve (12) months for any parts supplied by and Services performed by Seller (the "Services Warranty Period") (collectively the "Warranty Period"). Should any failure to conform to this warranty appear within the Warranty Period, Customer shall provide Seller prompt written notification thereof within five (5) business days after first knowledge of such nonconformance, which notice shall include substantiation that the Equipment that is the subject of such warranty claim has been stored, installed, operated and maintained in accordance with Seller's recommendations and standard industry practice. Seller shall correct such nonconformities, at its option, either by repairing any defective part or parts or by supplying a repaired or replacement part or parts F.O.B. Seller's factory. In no event shall Seller's liability for warranty of parts which are not manufactured by Seller, be greater than the warranty liability assumed by the supplier or manufacturer of such component parts.

In no event shall it be the responsibility of the Seller to ensure and/or provide access to the equipment for the purpose of repairing any claimed defect, nor shall Seller be responsible for the removal, disassembly, replacement or reinstallation of any equipment, materials or structures to the extent necessary to permit Seller to perform its warranty obligations. Nor shall Seller be responsible for transportation costs to and from the Seller's factory or repair facility. It shall be the responsibility of the Customer to ensure and provide access for Seller to repair any defect and shall be the responsibility and expense of the Customer to facilitate the removal, disassembly, replacement, or reinstallation of any equipment. If Customer wants to test an item to determine if a problem is covered by warranty, the conditions of any tests shall be mutually agreed upon and Seller shall be notified of, and may be present at, all tests that may be made.

The foregoing warranties are valid only if the Equipment is stored, installed, operated and maintained in accordance with all reasonable instructions of Seller and with standard industry practice. The foregoing warranties will not apply to defects that result from misuse, alteration, abuse, negligence, accident, acts of God, sabotage, improper assembly, installation, application, circuit protection, maintenance, or repair of the Equipment by Customer or others. The warranties also will not apply if, without Seller's consent, the Equipment is subjected to tests other than those specified by Seller. The warranties shall not apply to Equipment or parts thereof which have been altered or repaired outside of Seller's place of business, without prior written authorization. Should Customer elect not to implement the full scope of repairs or services recommended by Seller, Seller

makes no warranty and assumes no liability for any subsequent failure of such Equipment. Maintenance and ordinary wear and tear of parts are not covered by this warranty and are the sole maintenance responsibility of Customer.

THE WARRANTIES SET FORTH IN THIS PROVISION ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER STATUTORY, EXPRESS OR IMPLIED (INCLUDING ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE AND ALL WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE). THE REMEDIES PROVIDED ABOVE ARE THE CUSTOMER'S SOLE REMEDIES FOR ANY FAILURE OF OTC SERVICES TO COMPLY WITH ITS OBLIGATIONS. CORRECTION OF ANY NON-CONFORMITY IN THE MANNER AND FOR THE PERIOD OF TIME PROVIDED ABOVE SHALL CONSTITUTE COMPLETE FULFILLMENT OF ALL THE LIABILITIES OF SELLER WHETHER THE CLAIMS OF THE CUSTOMER ARE BASED IN CONTRACT, IN TORT, (INCLUDING NEGLIGENCE) OR OTHERWISE WITH RESPECT TO OR ARISING OUT OF THE EQUIPMENT FURNISHED HEREUNDER.

**4. Limitations of Liability and Indemnities**

(a) THE CUSTOMER AND SELLER AGREE THAT ANY ACTION IN RELATION TO AN ALLEGED BREACH OF THE AGREEMENT SHALL BE COMMENCED NO LATER THAN THE DATE OF THE EXPIRATION OF THE WARRANTY PERIOD WITHOUT REGARD TO THE DATE THE BREACH IS DISCOVERED. ANY ACTION NOT BROUGHT WITHIN THE WARRANTY TIME PERIOD SHALL BE BARRED WITHOUT REGARD TO ANY OTHER LIMITATIONS PERIOD SET FORTH BY ANY LAW OR STATUTE.

(b) Unless otherwise agreed in writing by a duly authorized representative of Seller, Equipment sold hereunder is not intended for use in connection with any nuclear facility or activity. If so used, Seller disclaims all liability for any nuclear damage, injury or contamination, and Customer shall indemnify, hold harmless, and defend Seller against any such liability, whether as a result of breach of contract, warranty, tort (including negligence) or otherwise.

(c) In no event, whether as a result of breach of contract, warranty, tort (including negligence) or otherwise, shall Seller or its suppliers be liable for any special, consequential, incidental, punitive, or penal damages including, but not limited to, loss of profit or revenues, loss of use of the products or any associated equipment, damage to associated equipment, cost of capital, cost of substitute products, facilities, services or replacement power, downtime costs, or claims of Customer's customers for such damages, even if Seller is advised or should have known of the possibility of such damage or loss. If Customer transfers title to or leases the item repaired and/or refurbished by Seller, or serviced or otherwise sold to Customer by Seller, to any third party, Customer shall obtain from such third party a provision affording Seller and its suppliers the protection of the preceding sentence.

(d) Customer hereby agrees to indemnify, defend and hold Seller, its officers, directors, managers, employees, successors and assigns harmless from and against any and all claims, actions, demands, losses, suits, damages, liability or expenses (including reasonable attorneys' fees), arising out of or relating to the breach of this Agreement by Customer, any act or omission of Customer, including, but not limited to, any negligent act by Customer or any of its employees during the performance of the Services by Seller at Customer's facility, or the use of the Equipment or any work and/or Service performed by Seller for Customer. Customer further agrees to indemnify, defend and hold Seller, its officers, directors, managers, employees, successors and assigns harmless from and against any and all claims, actions, demands, losses, suits, damages, liability or expenses (including reasonable attorneys' fees), arising out of or relating to any act or omission of Seller, including, any negligent act by Seller or any of its employees during the inspection of Equipment by Customer or anyone acting at the direction of Customer, or with Customer's approval, at Seller's facility. Customer hereby agrees any employees or agents its sends on site at Seller's facility for the purpose of inspecting Equipment will sign an assumption of the risk and waiver of damages form in accordance with the indemnity in the preceding sentence. Upon notice of a third party alleging liability on the part of Seller or Customer, Customer and Seller agree to immediately notify the other of the alleged liability. Seller may at Seller's exclusive discretion and without consulting Customer, settle any claim during or prior to litigation being commenced, without Customer's approval and Seller shall be entitled to full and complete indemnification hereunder from Customer.

(e) In no event, whether as a result of breach of contract, warranty, tort (including negligence) or otherwise shall Seller's liability to Customer for any loss or damage, arising out of, or resulting from this Agreement, or from its performance or breach, or from the products or services furnished hereunder, exceed the price of the specific product or service which gives rise to the claim. The price of the specific product or service shall not include sales commissions, transportation costs or discounts. Except as to title, any such liability shall be terminated upon the expiration of the Warranty Period.

(f) If Seller furnishes Customer with advice or other assistance which concerns any Equipment supplied or Service provided hereunder or any system or equipment in which any such Equipment may be installed or incorporated, or for which the Services are provided and which is not required pursuant to this agreement, the furnishing of such advice or assistance will not subject Seller to any liability, whether in contract, warranty, tort (including negligence) or otherwise.

(g) The invalidity, in whole or part, of any of the foregoing paragraphs will not affect the remainder of such paragraph or any other paragraph in this article.

**5. Penalty or Liquidated Damages**

Contracts which include Penalty or Liquidated damage clauses for failure to meet shipping promises are not acceptable or binding on Seller unless such clauses are specifically accepted in writing by an authorized representative of Seller.

**6. Disclosure of Information**

Any information, suggestions or ideas transmitted by Customer to Seller in connection with performance hereunder are not to be regarded as secret or submitted in confidence except as may be otherwise provided in writing signed by a duly authorized representative of Seller.

**7. Taxes**

Unless otherwise noted, prices quoted do not include taxes or duties or any kind or nature. In addition to any price specified herein, Customer shall pay the gross amount of any present or future sales, use, excise, value-added, or other similar tax applicable to the price, sale or delivery of any products or services furnished hereunder or to their use by Seller or Customer, or, in lieu of payment, Customer shall furnish Seller with a tax exemption certificate satisfactory to the applicable taxing authority proving that no such tax is due and payable upon such sale, transfer, or use.

**8. Modification, Cancellation, or Deferment by Customer**

Orders or purchase contracts may be modified or canceled, and scheduled shipments may be deferred, only upon Customer's written notice and upon confirmation in writing by Seller's revised acknowledgement, and upon terms, satisfactory to Seller, which compensate Seller for all damages suffered by reason of such modification, cancellation, or deferment. Any modification, cancellation, or deferment hereunder shall become effective no earlier than fifteen (15) days after receipt of such notice. In the event Customer causes a delay to, or change in the delivery date, Seller remains entitled to require payment on all dates contractually agreed upon in the original sales contract irrespective of any change in delivery date.

**9. Drawing Approval**

Drawing Approval by Customer is intended to assure the Customer that Seller has designed the product as described and detailed in the Customer's specification. If at Drawing Approval, Customer informs Seller that Seller has failed to design the product in line with the Customer's specification, Seller will make the appropriate changes at no charge to Customer. Where Customer's specifications are not definitive, Seller reserves the right to design the product in line with, in Seller's judgment, good commercial practice. If at Drawing Approval, the Customer makes changes outside of the design as covered in Customer's specifications, Seller will then be reimbursed reasonable charges and allowed a commensurate delay in shipping date based on the changes involved. Seller shall give Customer ten (10) days' advance notice of a Drawing Approval Date. Failure by Customer to review drawings and appear at the scheduled Drawing Approval shall be deemed to be a waiver by Customer of any claim of failure by Seller to design the product in line with the Customer's specification.

**10. Delivery, Shipment, Title and Risk of Loss**

Delivery dates are approximate and are based upon prompt receipt of all necessary information from Customer. All shipments are F. O. B. unless stated otherwise on the quote. Risk of loss or damage to new Equipment shall pass to Customer at the F. O. B. point of shipment unless the Seller specifically, in writing, agrees otherwise. Risk of loss or damage to repaired or refurbished Equipment, including Equipment stored at Seller's facility, shall remain with Customer, excluding any new parts that Seller installs or provides. Any claims for loss, damage, or delay in transit must be submitted and prosecuted by the Customer directly with the carrier, who is hereby declared to be the agent of the Customer.

**11. Excusable Delays**

Seller shall not be liable for any damages suffered by Customer by reason of delay in delivery or performance, or for failure to manufacture, deliver or perform, due to (I) a cause beyond Seller's reasonable control, or (II) an act of God, act of Customer, act of civil or military authority, Governmental priority, strike, or other Labor disturbance, flood, epidemic, war, riot, delay in transportation or transportation availability, or transportation vehicle shortage, or (III) inability on account of a cause beyond the reasonable control of Seller to obtain necessary materials, components, services, or facilities. Seller will notify Customer promptly of any material delay excused by this article and will specify the revised delivery date as soon as practicable. In the event of any such delay, there will be no termination and the date of delivery or of performance shall be extended for a period equal to the time lost by reason of the delay.

**12. Payments and Financial Condition**

Except to the extent otherwise specified by Seller in its quotation, pro rata payments shall become due without set off as shipments are made. If Seller consents to delay shipments after completion of any product, payment shall become due on the date when Seller is prepared to make shipment. In the event of any such delay, title shall pass on the original shipping date and products shall be held at Customer's risk and expense, and shall be subject to superior lien rights of Seller to secure any payments due Seller for the equipment or services rendered and to be rendered pursuant to the purchase order. Any order for products by Customer shall constitute a representation that Customer is solvent and it has all requisite right, power, and authority to perform its obligations under this agreement. In addition, upon Seller's request, Customer will furnish a written representation concerning its solvency and/or its right, power, and authority to perform its obligations at any time prior to shipment. If Customer's financial condition at any time does not justify continuance of the work to be performed by Seller hereunder on the agreed terms of payment Seller may require full or partial payment in advance. In the event of Customer's bankruptcy or insolvency or in the event any proceeding is brought against Customer, voluntarily or involuntarily, under the bankruptcy or any insolvency laws, Seller shall be entitled to cancel any order then outstanding at any time during the period allowed for filing claims against the estate and shall receive reimbursement for its proper cancellation charges. Seller's rights under this article are in addition to all rights available to it at law or in equity.

**13. Terms of Payment**

Standard terms are net within thirty (30) days from date of invoice with Customers in the continental U.S. For Customers outside the continental U.S., full payment is due prior to shipment.

**14. Accelerated or Delayed Payments**

There will be no reduction in price for payments more favorable to Seller than the standard terms. If payments are not made in conformance with the standard terms, the quoted price shall, without prejudice to the right of Seller to immediate payment, be increased by an amount equal to the lesser of one and one-half (1-1/2%) percent per month, or fraction thereof, on the unpaid balance or the highest legal rate allowed by law. In addition to its right of acceleration, Seller may pursue any and all remedies allowed by law or in equity, including but not limited to any and all remedies

available to it under the Ohio Uniform Commercial Code. In addition to the foregoing, and not in limitation thereof, Seller shall have the right to set off any credits or amounts owed to Customer against any amounts owed by Customer to Seller.

**15. Prices**

All published prices and discounts are subject to change without notice. Written quotations expire thirty (30) calendar days from the date of quotation unless withdrawn sooner. Verbal quotations expire twenty-four (24) hours after they are made. Seller assumes no liability for import duties or other taxes imposed by any foreign country.

**16. Storage**

At Seller's discretion, Seller may initiate storage fees of \$0.20/kVA per month for inside storage of Equipment and \$500 per month for outside storage of Equipment at Seller's premises when; 1) Customer delays pickup or shipment of Equipment for more than 30 days after completion, or 2) Customer does not issue a revised purchase order authorizing work within 30 days of receipt of an incoming inspection report. Storage Fees will include rental of space at the rate herein, plus the costs, expenses and labor to transport, preserve and prepare the Equipment for storage. These storage fees and costs associated with them shall be in addition to the agreed upon fee for service entered into by Seller and Customer. Upon the commencement of storage charges, Seller shall have a lien upon the Equipment for storage charges, as permitted under Title 13, Chapter 1307, or other provisions of the Ohio Revised Code. Seller shall be entitled to exercise all remedies allowed by law for the collection of storage charges, including the right to sell the Equipment at public or private sale after storage of 180 days without any liability or responsibility to Customer whatsoever.

In the event Seller performs Services at Customer's facility, Seller, in its discretion, may store equipment and tools at Customer's facility for the duration of the Services performed. Under no circumstances shall Customer, its employees or agents have any right to use the tools and equipment of Seller for any purpose, other than those specifically contracted for in writing. Customer warrants it will protect such tools and equipment of Seller stored at Customer's facility from loss, damage or destruction of any kind for the duration of the Services performed by Seller in the same manner as Customer protects its own property.

**17. Insurance**

Customer agrees to maintain insurance on equipment and product provided by Seller to fully compensate Customer for all damages and loss, including profit for any and all loss to said equipment and product that is not a result of Seller's negligence.

**18. Weights and Dimensions**

Published weights are actual or careful estimates, but are not guaranteed. The dimensions in catalogs are normally accurate but are not to be used for construction.

**19. Waiver**

The failure of Seller to insist, in any one or more instances, upon the performance of any of the terms or conditions of this Agreement or the failure of Seller to exercise any of its rights hereunder shall not be construed as a waiver or relinquishment of any such term, condition, or right hereunder and shall not affect the Seller's right to insist on strict performance and compliance with regard to any unexcused portions of this Agreement or future performance of these terms and conditions.

**20. Jurisdiction and Venue**

This Agreement shall be interpreted under the laws of the State of Ohio. Any litigation under this Agreement shall be commenced and resolved in the trial courts of Stark County, Ohio. Customer waives any rights it may otherwise have to litigate in any other jurisdiction, including any appropriate federal court.

**21. Severability Clause**

If any provision of the Agreement is held unenforceable, then such provision will be modified to reflect the parties intention. All remaining provisions of the Agreement shall remain in full force and effect.

**22. Electronic Signatures**

By entering into this Agreement, Customer and Seller are representing to the other that each can and will comply with the Ohio Uniform Electronic Transfer Act by retaining any and all electronic authorizations that are part of this transaction. Further, upon the request of either party for any part of the transaction or the entire transaction, the parties agree to provide original signatures, facsimile signatures, digitally scanned signatures and/or some other type of verifiable signature upon request.

**23. Assignment**

No rights arising under this agreement may be assigned by the Customer unless expressly agreed to in writing by the Seller.

**24. Equal Opportunity**

Seller shall comply with all applicable laws and regulations relating to labor, equal opportunity, discrimination, disabilities, and affirmative action.

**The above constitutes the entire agreement between the parties and no modifications of the terms thereof shall be effective unless in a writing signed by both parties.**

# STANDARD GENERAL CONDITIONS FOR PROCUREMENT CONTRACTS

## ARTICLE 1- DEFINITIONS AND TERMINOLOGY

### *1.01 Defined Terms*

A. Whenever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to the singular or plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. Addenda-Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. Agreement-The written instrument signed by both Buyer and Seller covering the Goods and Special Services and which lists the Contract Documents in existence on the Effective Date of the Agreement.

3. Application for Payment-The form acceptable to Buyer which is used by Seller in requesting progress and final payments and which is accompanied by such supporting documentation as is required by the Contract Documents.

4. Bid- The offer or proposal of a Seller submitted on the prescribed form setting forth the prices for the Goods and Special Services to be provided.

5. Bidder-The individual or entity that submits a Bid directly to Buyer.

6. Bidding Documents-The Bidding Requirements and the proposed Contract Documents (including all Addenda).

7. Bidding Requirements-The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and Bid Form with any supplements.

8. Buyer- individual or entity purchasing the Goods and Special Services. The term "Buyer" is used to be consistent with the Uniform Commercial Code (UCC).

9. Change Order-A document which is signed by Seller and Buyer and authorizes an addition, deletion, or revision to the Contract Documents or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement. Change Orders may be the result of mutual agreement by Buyer and Seller, or of resolution of a Claim.

10. Claim-A demand or assertion by Buyer or Seller seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. Contract-The entire and integrated written agreement between Buyer and Seller concerning the Goods and Special Services. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. Contract Documents-Those items so designated in the Agreement. Shop Drawings and other Seller submittals are not Contract Documents, even if accepted, reviewed, or approved by Engineer or Buyer.

13. Contract Price-The moneys payable by Buyer to Seller for furnishing the Goods and Special Services in accordance with the Contract Documents as stated in the Agreement.

14. Contract Times-The times stated in the Agreement by which the Goods must be delivered and Special Services must be furnished.

15. Drawings-That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Goods and Special Services to be furnished by Seller. Shop Drawings and other Seller submittals are not Drawings as so defined.

16. Effective Date of the Agreement-The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

17. Engineer-The individual or entity designated as such in the Agreement.

18. Field Order-A written order issued by Engineer which requires minor changes in the Goods or Special Services but which does not involve a change in the Contract Price or Contract Times.

19. General Requirements-Sections of Division 01 of the Specifications. The General Requirements pertain to all sections of the Specifications.

20. Goods-The tangible and movable personal property that is described in the Contract Documents, regardless of whether the property is to be later attached to realty.

21. Goods and Special Services-The full scope of materials, equipment, other items, and services to be furnished by Seller, including Goods, as defined herein, and Special Services, if any, as defined herein. This term refers to both the Goods and the Special Services, or to either the Goods or the Special Services, and to any portion of the Goods or the Special Services, as the context requires.

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

23. Milestone-A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to the Contract Times.

24. Notice of Award-The written notice by Buyer to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Buyer will sign and deliver the Agreement.

25. Notice to Proceed-A written notice given by Buyer to Seller fixing the date on which the Contract Times commence to run and on which Seller shall start to perform under the Contract.

26. Point of Destination-The specific address of the location where delivery of the Goods shall be made, as stated in the Agreement.

27. Project-The total undertaking of which the Goods and Special Services may be the whole, or only a part.

28. Project Manual-The documentary information prepared for bidding and furnishing the Goods and Special Services. A listing of the contents of the Project Manual is contained in its table of contents.

29. Samples-Physical examples of materials, equipment, or workmanship that are representative of some portion of the Goods and Special Services and which establish the standards by which such portion of the Goods and Special Services will be judged.

30. Seller-The individual or entity furnishing the Goods and Special Services.

31. Shop Drawings-All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Seller and submitted by Seller to illustrate some portion of the Goods and Special Services.

32. Special Services-Services associated with the Goods to be furnished by Seller as required by the Contract Documents.

33. Specifications-That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the furnishing of the Goods and Special Services, and certain administrative requirements and procedural matters applicable thereto.

34. Successful Bidder-The Bidder submitting a responsive Bid, to whom Buyer makes an award.

35. Supplementary Conditions-That part of the Contract Documents which amends or supplements these General Conditions.

36. Work Change Directive-A written statement to Seller issued on or after the Effective Date of the Agreement and signed by Buyer ordering an addition, deletion, or other revision in the Contract Documents with respect to the Goods and Special Services. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

### *1.02 Terminology*

A. The words and terms discussed in Paragraphs 1.02.B and 1.02.C are not defined, but have the indicated meanings when used in the Bidding Requirements or Contract Documents.

#### B. Intent of Certain Terms or Adjectives:

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Goods and Special Services. It is intended that such exercise of professional judgment,

action, or determination will be commercially reasonable and will be solely to evaluate, in general, the Goods and Special Services for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to Engineer any duty or authority to supervise or direct the furnishing of Goods or Special Services or any duty or authority to undertake responsibility contrary to any other provision of the Contract Documents.

2. The word "non-conforming" when modifying the words "Goods and Special Services," "Goods," or "Special Services," refers to Goods and Special Services that fail to conform to the Contract Documents.

3. The word "receipt" when referring to the Goods, shall mean the physical taking and possession by the Buyer under the conditions specified in Paragraph 8.01.B.3.

4. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

5. The word "furnish," when used in connection with the Goods and Special Services shall mean to supply and deliver said Goods to the Point of Destination (or some other specified location) and to perform said Special Services fully, all in accordance with the Contract Documents.

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

## **ARTICLE 2 - PRELIMINARY MATTERS**

### *2.01 Delivery of Bonds*

A. When Seller delivers the executed counterparts of the Agreement to Buyer, Seller also shall deliver such bonds as Seller may be required to furnish.

### *2.02 Evidence of Insurance*

A. When Seller delivers the executed counterparts of the Agreement to Buyer, Seller shall deliver to Buyer, with copies to each additional insured identified by name in Paragraph 4.2.C.1, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Seller is required to purchase and maintain in accordance with Article 4.

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

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

### *2.04 Designated Representatives*

A. Buyer and Seller shall each designate its representative at the time the Agreement is signed. Each representative shall have full authority to act on behalf of and make binding decisions in any matter arising out of or relating to the Contract.

### *2.05 Progress Schedule*

A. Within 15 days after the Contract Times start to run, Seller shall submit to Buyer and Engineer an acceptable progress schedule of activities, including at a minimum, Shop Drawing and Sample submittals, tests, and deliveries as required by the Contract Documents. No progress payment will be made to Seller until an acceptable schedule is submitted to Buyer and Engineer.

B. The progress schedule will be acceptable to Buyer and Engineer if it provides an orderly progression of the submittals, tests, and deliveries to completion within the specified Milestones and the

Contract Times. Such acceptance will not impose on Buyer or Engineer responsibility for the progress schedule, for sequencing, scheduling, or progress of the work nor interfere with or relieve Seller from Seller's full responsibility therefor. Such acceptance shall not be deemed to acknowledge the reasonableness and attainability of the schedule.

### *2.07 Preliminary Conference*

A. Within 20 days after the Contract Times start to run, a conference attended by Seller, Buyer, Engineer and others as appropriate will be held to establish a working understanding among the parties as to the Goods and Special Services and to discuss the schedule referred to in Paragraph 2.06.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

### *2.08 Safety*

A. Buyer and Seller shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss. When Seller's personnel, or the personnel of any subcontractor to Seller, are present at the Point of Destination or any work area or site controlled by Buyer, the Seller shall be responsible for the compliance by such personnel with any applicable requirements of Buyer's safety programs that are made known to Seller.

## **ARTICLE 3- CONTRACT DOCUMENTS: INTENT AND AMENDING**

### *3.01 Intent*

A. The Contract Documents are complementary; what is called for by one is as binding as if called for by all.

B. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce or furnish the indicated Goods and Special Services will be provided, whether or not specifically called for, at no additional cost to Buyer.

C. Clarifications and interpretations of, or notifications of minor variations and deviations in, the Contract Documents, will be issued by Engineer as provided in Article 9.

### *3.02 Standards, Specifications, Codes, Laws and Regulations*

A. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws and Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws and Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

B. No provision of any such standard, specification, manual or code, or any instruction of a supplier shall be effective to change the duties or responsibilities of Buyer or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall any such provision or instruction be effective to assign to Buyer or Engineer, or any of their consultants, agents, or employees any duty or authority to supervise or direct the performance of Seller's obligations or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

### *3.03 Reporting and Resolving Discrepancies*

#### A. Reporting Discrepancies:

1. Seller's Review of Contract Documents Before the Performance of the Contract: Before performance of the Contract, Seller shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Seller shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Seller discovers or has actual knowledge of and shall obtain a written interpretation or clarification from Engineer before proceeding with the furnishing of any Goods and Special Services affected thereby.

2. Seller's Review of Contract Documents During the Performance of the Contract: If, during the performance of the Contract, Seller discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Contract, any standard, specification, manual or code, or of any instruction of any Supplier, Seller shall promptly report it to Engineer in writing. Seller shall not proceed with the furnishing of the Goods and Special Services affected thereby until an amendment to or clarification of the Contract Documents has been issued.

3. Seller shall not be liable to Buyer or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Seller had actual knowledge thereof.

B. Resolving Discrepancies: Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

1. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

2. the provisions of any Laws or Regulations applicable to the furnishing of the Goods and Special Services (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

#### 3.04 Amending and Clarifying Contract Documents

A. The Contract Documents may be amended to provide for additions, deletions, and revisions to the Goods and Special Services or to modify contractual terms and conditions by a Change Order.

B. Buyer may issue a Work Change Directive providing for additions, deletions, or revisions to the Goods and Special Services, in which case (1) the Contract Price shall be equitably adjusted to account for any reasonable and necessary credits to Buyer for any such deletion, or for costs (including reasonable overhead and profit) incurred by Seller to accommodate such an addition or revision and (2) the Contract Times shall be equitably adjusted to account for any impact on progress and completion of performance. Such adjustments subsequently shall be duly set forth in a Change Order.

C. The requirements of the Contract Documents may be supplemented and minor variations and deviations in the Goods and Special Services may be authorized, by one or more of the following ways:

1. Field Order;
2. Engineer's written interpretation or clarification.

## **ARTICLE 4- BONDS AND INSURANCE**

### 4.01 Bonds

A. Seller shall furnish to Buyer payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Seller's obligations under the Contract Documents. This bond shall remain in effect until 1) one year after the date when final payment becomes due or 2) completion of the correction period specified in Paragraph 8.03, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Seller shall also furnish such other bonds as are required by the Contract Documents.

B. Bond shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. Bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.

C. If the surety on any bond furnished by Seller is declared bankrupt or becomes insolvent or its right to do business is terminated

in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 4.01.B, Seller shall promptly notify Buyer and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 4.01.B and 4.02.

### 4.02 Insurance

A. *Property Insurance*: Seller shall assume all risk of loss or damage to the Goods prior to acceptance of delivery by Buyer at the point of delivery; and shall purchase and maintain insurance on the Goods during the process of fabrication and while in transit to insure against the perils of fire and extended coverage including "all risk" insurance for physical loss and damage including theft, vandalism and malicious mischief, collapse, water damage and such other perils as may be provided herein and as Seller deems appropriate.

B. *Liability Insurance* Seller shall purchase and maintain such liability and other insurance as is appropriate for the furnishing of Goods and Special Services and as will provide protection from claims set forth below which may arise out of or result from Seller's furnishing of the Goods or Special Services and Seller's other obligations under the Contract Documents, whether the furnishing of Goods or Special Service, or other obligations are to be performed by Seller, any subcontractor or supplier, or by anyone directly or indirectly employed by any of them to furnish the Goods or Special Services, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
2. claims for damages because of bodily injury, occupational sickness or disease, or death of Seller's employees;
3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Seller's employees;
4. claims for damages insured by reasonably available personal injury liability coverage which are sustained: (i) by any person as a result of an offense directly or indirectly related to the employment of such person by Seller, or (ii) by any other person for any other reason;
5. claims for damages, other than to the Goods, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

C. The policies of insurance so required by this Paragraph 4.02 to be purchased and maintained shall:

1. with respect to insurance required by Paragraphs 4.02.B.3 through 4.02.B.6 inclusive, include as additional insureds (subject to any customary exclusion in respect of professional liability) City of Geneva, Illinois, Stanley Consultants, Inc., their consultants, shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
2. include at least the specific coverages and be written for not less than the limits of liability provided below or required by Laws or Regulations, whichever is greater;
3. include completed operations insurance;
4. include contractual liability insurance covering Seller's indemnity obligations under Paragraphs 5.09 and 12.02.
5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Buyer and Seller and to each other additional insured identified in these General Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by Seller pursuant to Paragraph 4.02.E will so provide);
6. remain in effect at least until final payment and at all times thereafter when Seller may be correcting, removing, or replacing nonconforming Goods in accordance with Paragraph 8.03; and
7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment (and Seller shall furnish Buyer and each other additional insured identified herein, to whom a certificate of insurance has been issued, evidence

satisfactory to Buyer and any such additional insured of continuation of such insurance at final payment and one year thereafter); and

8. with respect to any delegation of professional design services to Seller pursuant to Paragraph 5.10, include professional liability coverage by endorsement or otherwise.

D. The limits of liability for the insurance required by Paragraph 4.02.B shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs 4.02.B.1 and B.2:
  - a. State: Statutory
  - b. Applicable Federal (e.g., Longshoreman's): Statutory
  - c. Employer's Liability: \$1,000,000
2. Seller's General Liability under Paragraphs 4.02.B.3 through B.6 which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of Seller:
  - a. General Aggregate \$3,000,000
  - b. Products – Completed Operations Aggregate \$3,000,000
  - c. Personal and Advertising Injury \$3,000,000
  - d. Each Occurrence (Bodily Injury and Property Damage) \$3,000,000
  - e. Property Damage liability insurance will provide Explosion, Collapse, and Underground coverages where applicable.
  - f. Excess or Umbrella Liability:
    - 1) General Aggregate \$3,000,000
    - 2) Each Occurrence \$3,000,000
3. Automobile Liability under Paragraph 4.02.B.6:
  - a. Bodily Injury:
    - 1) Each person \$2,000,000
    - 2) Each Accident \$2,000,000
  - b. Property Damage:
    - 1) Each Accident \$2,000,000
  - c. Combined Single Limit of \$2,000,000

E. Seller shall deliver to Buyer, with copies to each additional insured identified in Paragraph 4.02.C.1, certificates of insurance (and other evidence of insurance requested by Buyer or any other additional insured) which Seller is required to purchase and maintain.

F. Failure of Buyer to demand certificates of insurance or other evidence of Seller's full compliance with these insurance requirements or failure of Buyer to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Seller's obligation to maintain such insurance.

G. If Buyer has any objection to the coverage afforded by or other provisions of the insurance required to be purchased and maintained on the basis of non-conformance with the Contract Documents, Buyer shall notify Seller in writing within 10 days after receipt of the certificates or other evidence required by Paragraph 4.02.J. Seller shall provide such additional information in respect to insurance as Buyer shall reasonably request.

H. Upon assignment of this Contract, Seller shall comply with the written request of assignee to provide certificates of insurance to assignee.

I. Buyer does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Seller.

J. The insurance and insurance limits required herein shall not be deemed as a limitation on Seller's liability under the indemnities granted to Buyer in the Contract Documents.

#### 4.03 Licensed Sureties and Insurers

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Buyer or Seller shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided.

## ARTICLE 5 - SELLER'S RESPONSIBILITIES

### 5.01 Supervision and Superintendence

A. Seller shall supervise, inspect, and direct the furnishing of the Goods and Special Services competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform its obligations in accordance with the Contract Documents. Seller shall be solely responsible for the means, methods, techniques, sequences, and procedures necessary to perform its obligations in accordance with the Contract Documents. Seller shall not be responsible for the negligence of Buyer or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure that is shown or indicated in and expressly required by the Contract Documents.

### 5.02 Labor, Materials and Equipment

A. Seller shall provide competent, qualified and trained personnel in all aspects of its performance of the Contract.

B. All Goods, and all equipment and material incorporated into the Goods, shall be as specified, and unless specified otherwise in the Contract Documents, shall be:

1. new, and of good quality;
2. protected, assembled, connected, cleaned, and conditioned in accordance with the original manufacturer's instructions; and
3. shop assembled to the greatest extent practicable.

### 5.03 Laws and Regulations

A. Seller shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of its obligations in accordance with the Contract Documents. Except where otherwise expressly required by such Laws and Regulations, neither Buyer nor Engineer shall be responsible for monitoring Seller's compliance with any Laws or Regulations.

B. If Seller furnishes Goods and Special Services knowing or having reason to know that such furnishing is contrary to Laws or Regulations, Seller shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such performance. It shall not be Seller's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this provision shall not relieve Seller of Seller's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance shall be the subject of an adjustment in Contract Price or Contract Times. If Buyer and Seller are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 9.06.

### 5.04 Or Equals

A. Whenever the Goods, or an item of material or equipment to be incorporated into the Goods, are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular supplier or manufacturer, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item is permitted, other items of material or equipment or material or equipment of other suppliers or manufacturers may be submitted to Buyer for Engineer's review.

1. If in Engineer's sole discretion, such an item of material or equipment proposed by Seller is functionally equal to that named and sufficiently similar so that no change in related work will be required, it may be considered by Engineer as an "or-equal" item.

2. For the purposes of this paragraph, a proposed item of material or equipment may be considered functionally equal to an item so named only if:

a. in the exercise of reasonable judgment, Engineer determines that: 1) it is at least equal in quality, durability, appearance, strength, and design characteristics; 2) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole; 3) it has an acceptable record of performance and availability of responsive service; and

b. Seller certifies that if approved: 1) there will be no increase in any cost, including capital, installation or operating costs, to Buyer; and 2) the proposed item will conform substantially to the detailed requirements of the item named in the Contract Documents.

B. **Engineer's Evaluation:** Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraph 5.04.A. Engineer will be the sole judge of whether to accept or reject such a proposal or submittal. No "or-equal" will be ordered, manufactured or utilized until Engineer's review is complete, which will be evidenced by an approved Shop Drawing. Engineer will advise Buyer and Seller in writing of any negative determination. Notwithstanding Engineer's approval of an "or-equal" item, Seller shall remain obligated to comply with the requirements of the Contract Documents.

C. **Special Guarantee:** Buyer may require Seller to furnish at Seller's expense a special performance guarantee or other surety with respect to any such proposed "or-equal."

D. **Data:** Seller shall provide all data in support of any such proposed "or-equal" at Seller's expense.

#### 5.05 Taxes

A. Seller shall be responsible for all taxes and duties arising out of the sale of the Goods and the furnishing of Special Services. All taxes are included in the Contract Price.

1. Buyer will furnish the required certificates of tax exemption to Seller with respect to materials and equipment to be incorporated into the Project facilities.

2. Buyer's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Seller, or to supplies or materials not incorporated into the Project facilities.

3. The Contract Price does not include the cost of sales or compensating use taxes to the extent such are exempted by this paragraph.

#### 5.06 Shop Drawings and Samples

A. Seller shall submit Shop Drawings and Samples to Buyer for Engineer's review in accordance with the schedule required in Paragraph 2.06.A. All submittals will be identified as required and furnished in the number of copies specified in the Contract Documents. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Seller proposes to provide.

B. Where a Shop Drawing or Sample is required by the Contract Documents, any related work performed prior to Engineer's review of the pertinent submittal will be at the sole expense and responsibility of Seller.

#### C. Submittal Procedures:

1. Before submitting each Shop Drawing or Sample, Seller shall have determined and verified:

a. all field measurements (if required), quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto; and

b. that all materials are suitable with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the furnishing of Goods and Special Services.

c. Seller shall also have reviewed and coordinated each Shop Drawing or Sample with the Contract Documents.

2. Each submittal shall bear a stamp or include a written certification from Seller that Seller has reviewed the subject submittal and confirmed that it is in compliance with the requirements of the Contract Documents. Both Buyer and Engineer shall be entitled to rely on such certification from Seller.

3. With each submittal, Seller shall give Buyer and Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both in a written communication separate from the submittal and by specific notation on each Shop Drawing or Sample.

#### D. Engineer's Review:

1. Engineer will provide timely review of Shop Drawings and Samples.

2. Engineer's review will be only to determine if the Goods and Special Services covered by the submittals will, after installation or incorporation in the Project, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole.

3. Engineer's review shall not relieve Seller from responsibility for any variation from the requirements of the Contract Documents; nor will any review by Engineer relieve Seller from responsibility for errors or omissions in the Shop Drawings or from responsibility for having complied with the provisions of paragraph 5.06.C.1.

E. Seller shall furnish required submittals with sufficient information and accuracy in order to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing subsequent submittals of Shop Drawings, samples, or other items requiring approval and Seller shall reimburse Buyer for Engineer's charges for such time.

F. In the event that Seller requests a change of a previously approved item, Seller shall reimburse Buyer for Engineer's charges for its review time unless the need for such change is beyond the control of Seller.

G. **Resubmittal Procedures:** Seller shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Seller shall direct specific attention in writing to any revisions other than the corrections called for by Engineer on previous submittals.

#### 5.07 Continuing Performance

A. Seller shall adhere to the progress schedule established in accordance with Paragraph 2.06.A., and the Goods shall be delivered and the Special Services furnished within the Contract Times specified in the Agreement.

B. Seller shall carry on furnishing of the Goods and Special Services and adhere to the progress schedule during all disputes or disagreements with Buyer. No furnishing of Goods and Special Services shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraphs 11.03 or 11.04, or as Buyer and Seller may otherwise agree in writing.

#### 5.08 Seller's Warranties and Guarantees

A. Seller warrants and guarantees to Buyer that the title to the Goods conveyed shall be proper, its transfer rightful, and free from any security interest, lien, or other encumbrance. Seller shall defend, indemnify, and hold Buyer harmless against any liens, claims, or demands contesting or affecting title of the Goods conveyed.

B. Seller warrants and guarantees to Buyer that all Goods and Special Services will conform with the Contract Documents, and with the standards established by any Samples approved by Engineer. Engineer shall be entitled to rely on Seller's warranty and guarantee. If the Contract Documents do not otherwise specify the characteristics or the quality of the Goods, the Goods shall comply with the requirements of Paragraph 5.02.B.

C. Seller's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, improper modification, improper maintenance, or improper operation by persons other than Seller; or

2. corrosion or chemical attack, unless corrosive or chemically-damaging conditions were disclosed by Buyer in the Contract Documents and the Contract Documents required the Goods to withstand such conditions;

3. use in a manner contrary to Seller's written instructions for installation, operation, and maintenance; or
4. normal wear and tear under normal usage.

D. Seller's obligation to furnish the Goods and Special Services in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Goods and Special Services that are non-conforming, or a release of Seller's obligation to furnish the Goods and Special Services in accordance with the Contract Documents:

1. observations by Buyer or Engineer;
2. recommendation by Engineer or payment by Buyer of any progress or final payment;
3. use of the Goods by Buyer;
4. any acceptance by Buyer (subject to the provisions of Paragraph 8.02.D.1) or any failure to do so;
5. the issuance of a notice of acceptance by Buyer pursuant to the provisions of Article 8;
6. any inspection, test or approval by others; or
7. any correction of non-conforming Goods and Special Services by Buyer.

E. Buyer shall promptly notify Seller of any breach of Seller's warranties or guarantees.

F. Seller makes no implied warranties under this Contract.

#### 5.09 Indemnification

A. To the fullest extent permitted by Laws and Regulations, Seller shall indemnify and hold harmless Buyer and Engineer, and the officers, directors, members, partners, employees, agents, consultants, contractors, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of Seller's obligations under the Contract Documents, provided that any such claim, cost, loss, or damages attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Goods themselves), including the loss of use resulting therefrom, but only to the extent cause by any negligent act or omission of Seller, or any individual or entity directly or indirectly employed by Seller or anyone for whose acts Seller may be liable.

B. In any and all claims against Buyer or Engineer or any of their respective assignees, consultants, agents, officers, directors, members, partners, employees, agents, consultants, contractors, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Seller, any subcontractor, any supplier, or any individual or entity directly or indirectly employed by any of them to furnish any of the Goods and Special Services, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 5.09.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for seller or any such subcontractor, supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Seller under Paragraph 5.09.A shall not extend to the liability of Engineer and Engineer's officers, directors, partners, employees, agents, and consultants arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

#### 5.10 Delegation of Professional Design Services

A. Seller will not be required to provide professional design services unless such services are specifically required by the Contract Documents or unless such services are required to carry out Seller's responsibilities for furnishing the Goods and Special Services. Seller shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to the Goods and Special Services are specifically required of Seller by the Contract Documents, Buyer and Engineer will specify all performance and design criteria that such services must satisfy. Seller shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Goods and Special Services designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Buyer and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Buyer and Engineer have specified to Seller all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 5.10, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 5.06.D.2.

E. Seller shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

### **ARTICLE 6 - SHIPPING AND DELIVERY**

#### 6.01 Shipping

A. Seller shall select the carrier and bear all costs of packaging, transportation, insurance, special handling and any other costs associated with shipment and delivery.

#### 6.02 Delivery

A. Seller shall deliver the Goods F.O.B. the Point of Destination in accordance with the Contract Times set forth in the Agreement, or other date agreed to by Buyer and Seller.

B. Seller shall provide written notice to Buyer at least 10 days before shipment of the manner of shipment and the anticipated delivery date. The notice shall also include any instructions concerning special equipment or services required at the Point of Destination to unload and care for the Goods. Seller shall also require the carrier to give Buyer at least 24 hours notice by telephone prior to the anticipated time of delivery.

C. Seller will be responsible and bear all costs for unloading the Goods from carrier.

D. Buyer will assure that adequate facilities are available to receive delivery of the Goods during the Contract Times for delivery set forth in the Agreement, or another date agreed by Buyer and Seller.

E. No partial deliveries shall be allowed, unless permitted or required by the Contract Documents or agreed to in writing by Buyer.

#### 6.03 Risk of Loss

A. Risk of loss and insurable interests transfer from Seller to Buyer upon Buyer's receipt of the Goods.

B. Notwithstanding the provisions of Paragraph 6.03.A, if Buyer rejects the Goods as non-conforming, the risk of loss on such Goods shall remain with Seller until Seller corrects the non-conformity or Buyer accepts the Goods. If rejected Goods remain at the Point of Destination pending modification and acceptance, then Seller shall be responsible for arranging adequate protection and maintenance of the Goods at Seller's expense.

#### 6.04 Progress Schedule

A. Seller shall adhere to the progress schedule established in accordance with Paragraph 2.06 as it may be adjusted from time to time as provided below.

1. Seller shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.06) proposed adjustments in the progress schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the progress schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 7. Adjustments in Contract Times may only be made by a Change Order.

#### **ARTICLE 7 - CHANGES: SCHEDULE AND DELAY**

##### 7.01 Changes in the Goods and Special Services

A. Buyer may at any time, without notice to any surety, make an addition, deletion, or other revision to the Contract Documents with respect to the Goods and Services, within the general scope of the Contract, by a Change Order or Work Change Directive. Upon receipt of any such document, Seller shall promptly proceed with performance pursuant to the revised Contract Documents (except as otherwise specifically provided).

B. If Seller concludes that a Work Change Directive issued by Buyer affects the Contract Price or Contract Times, then Seller shall notify Buyer within 15 days after Seller has received the Work Change Directive, and submit written supporting data to Buyer within 45 days after such receipt. If Seller fails to notify Buyer within 15 days, Seller waives any Claim for such adjustment. If Buyer and Seller are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 9.06.

C. Seller shall not suspend performance while Buyer and Seller are in the process of making such changes and any related adjustments to Contract Price or Contract Times.

##### 7.02 Changing Contract Price or Contract Times

A. The Contract Price or Contract Times may only be changed by a Change Order.

B. Any Claim for an adjustment in the Contract Price or Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 9.06.

C. If Seller is prevented from delivering the Goods or performing the Special Services within the Contract Times for any unforeseen reason beyond its control and not attributable to its actions or inactions, then Seller shall be entitled to an adjustment of the Contract Times to the extent attributable to such reason. Such reasons include but are not limited to acts or neglect by Buyer, inspection delays, fires, floods, epidemics, abnormal weather conditions, acts of God, and other like matters. If such an event occurs and delays Seller's performance, Seller shall notify Buyer in writing within 15 days of knowing or having reason to know of the beginning of the event causing the delay, stating the reason therefor.

D. Seller shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Seller. Delays attributable to and within the control of Seller's subcontractors or suppliers shall be deemed to be delays within the control of Seller.

E. If Seller is prevented from delivering the Goods or furnishing the Special Services within the Contract Times due to the actions or inactions of Buyer, Seller shall be entitled to any reasonable and necessary additional costs arising out of such delay to the extent directly attributable to Buyer.

F. Neither Buyer nor Seller shall be entitled to any damages arising from delays which are beyond the control of both Buyer and Seller, including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God, and other like matters.

#### **ARTICLE 8- BUYER'S RIGHTS**

##### 8.01 Inspections and Testing

A. General:

1. The Contract Documents specify required inspections and tests. Buyer shall have the right to perform, or cause to be performed, reasonable inspections and require reasonable tests of the Goods at Seller's facility, and at the Point of Destination. Seller shall allow Buyer a reasonable time to perform such inspections or tests.

2. Seller shall reimburse Buyer for all expenses, except for travel, lodging, and subsistence expenses of Buyer's and Engineer's representatives, for inspections and tests specified in the Contract Documents. If as the result of any such specified testing the Goods are determined to be non-conforming, then Seller shall also bear the travel, lodging, and subsistence expenses of Buyer's and Engineer's representatives, and all expenses of re-inspection or retesting.

3. Buyer shall bear all expenses of inspections and tests that are not specified in the Contract Documents (other than any re-inspection or retesting resulting from a determination of non-conformity, as set forth in Paragraph 8.01.A.2 immediately above); provided, however, that if as the result of any such non-specified inspections or testing the Goods are determined to be non-conforming, then Seller shall bear all expenses of such inspections and testing, and of any necessary re-inspection and retesting.

4. Seller shall provide Buyer timely written notice of the readiness of the Goods for all inspections, tests, or approvals which the Contract Documents specify are to be observed by Buyer prior to shipment.

5. Buyer will give Seller timely notice of all specified tests, inspections, and approvals of the Goods which are to be conducted at the Point of Destination.

6. If, on the basis of any inspections or testing, the Goods appear to be conforming, Buyer will give Seller prompt notice thereof. If on the basis of said inspections or testing, the Goods appear to be non-conforming, Buyer will give Seller prompt notice thereof and will advise Seller of the remedy Buyer elects under the provisions of Paragraph 8.02.

7. Neither payments made by Buyer to Seller prior to any tests or inspections, nor any tests or inspections shall constitute acceptance of non-conforming Goods, or prejudice Buyer's rights under the Contract.

B. Inspection on Delivery:

1. Buyer or Engineer will visually inspect the Goods upon delivery solely for purposes of identifying the Goods and general verification of quantities and observation of apparent condition in order to provide a basis for a progress payment. Such visual inspection will not be construed as final or as receipt of any Goods and Special Services that, as a result of subsequent inspections and tests, are determined to be non-conforming.

2. Within ten days of such visual inspection, Buyer shall provide Seller with written notice of Buyer's determination regarding conformity of the Goods. In the event Buyer does not provide such notice, it will be presumed that the Goods appear to be conforming and that Buyer has acknowledged their receipt upon delivery.

3. If, on the basis of the visual inspection specified in Paragraph 8.01.B.1, the Goods appear to be conforming, Buyer's notice thereof to Seller will acknowledge receipt of the Goods.

C. Final Inspection:

1. After all of the Goods have been incorporated into the Project, tested in accordance with such testing requirements as are specified, and are functioning as indicated, Buyer or Engineer will make a final inspection.

2. If, on the basis of the final inspection, the Goods are conforming, Buyer's notice thereof will constitute Buyer's acceptance of the Goods.

3. If, on the basis of the final inspection, the Goods are non-conforming, Buyer will identify the non-conformity in writing.

##### 8.02 Non-Conforming Goods and Special Services

A. If, on the basis of inspections and testing prior to delivery, the Goods and Special Services are found to be non-conforming, or if at any time after Buyer has acknowledged receipt of delivery and before

the expiration of the correction period described in Paragraph 8.03, Buyer determines that the Goods and Special Services are non-conforming, then Seller shall promptly, without cost to Buyer and in response to written instructions from Buyer, either correct such non-conforming Goods and Special Services, or, if Goods are rejected by Buyer, remove and replace the non-conforming Goods with conforming Goods, including all work required for reinstallation.

**B. Buyer's Rejection of Non-Conforming Goods:**

1. If Buyer elects to reject the Goods in whole or in part, Buyer's notice to Seller will describe in sufficient detail the non-conforming aspect of the Goods. If Goods have been delivered to Buyer, Seller shall promptly, and within the Contract Times, remove and replace the rejected Goods.

2. Seller shall bear all costs, losses and damages attributable to the removal and replacement of the non-conforming Goods as provided in Paragraph 8.02.E.

3. Upon rejection of the Goods, Buyer retains a security interest in the Goods to the extent of any payments made and expenses incurred in their testing and inspection.

**C. Remedying Non-Conforming Goods and Special Services:**

1. If Buyer elects to permit the Seller to modify the Goods to correct the non-conformance, then Seller shall promptly provide a schedule for such modifications and shall make the Goods conforming within a reasonable time.

2. If Buyer notifies Seller in writing that any of the Special Services are non-conforming, Seller shall promptly provide conforming services acceptable to Buyer. If Seller fails to do so, Buyer may delete the Special Services and reduce the Contract Price a commensurate amount.

**D. Buyer's Acceptance of Non-Conforming Goods:** Instead of requiring correction or removal and replacement of non-conforming Goods discovered either before or after final payment, Buyer may accept the non-conforming Goods. Seller shall bear all reasonable costs, losses, and damages attributable to Buyer's evaluation of and determination to accept such non-conforming Goods as provided in Paragraph 8.02.E.

**E. Seller shall pay all claims, costs, losses, and damages,** including but not limited to all fees and charges for re-inspection, retesting and for any engineers, architects, attorneys and other professionals, and all court or arbitration or other dispute resolution costs arising out of or relating to the non-conforming Goods and Special Services. Seller's obligations shall include the costs of the correction or removal and replacement of the non-conforming Goods and the replacement of property of Buyer and others destroyed by the correction or removal and replacement of the non-conforming Goods, and obtaining conforming Special Services from others.

**F. Buyer's Rejection of Conforming Goods:** If Buyer asserts that Goods and Special Services are non-conforming and such Goods and Special Services are determined to be conforming, or if Buyer rejects as non-conforming Goods and Special Services that are later determined to be conforming, then Seller shall be entitled to reimbursement from Buyer of costs incurred by Seller in inspecting, testing, correcting, removing, or replacing the conforming Goods and Special Services, including but not limited to fees and charges of engineers, architects, attorneys and other professionals, and all court or arbitration or other dispute resolution costs associated with the incorrect assertion of non-conformance or rejection of conforming Goods and Special Services.

**8.03 Correction Period**

**A. Seller's responsibility for correcting all non-conformities in the Goods and Special Services** will extend for a period of one year after the earlier of the date on which Buyer has placed the Goods in continuous service or the date of final payment, or for such longer period of time as may be prescribed by Laws or Regulations or by the terms of any specific provisions of the Contract Documents.

**ARTICLE 9- ROLE OF ENGINEER**

**9.01 Duties and Responsibilities**

**A. The duties and responsibilities and the limitations of authority of Engineer** are set forth in the Contract Documents.

**9.02 Clarifications and Interpretations**

**A. Engineer will issue with reasonable promptness such written clarifications or interpretations of the Contract Documents as Engineer may determine necessary,** which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents. Such written clarifications and interpretations will be binding on Buyer and Seller. If either Buyer or Seller believes that a written clarification or interpretation justifies an adjustment in the Contract Price or Contract Times, either may make a Claim therefor.

**9.03 Authorized Variations**

**A. Engineer may authorize minor deviations or variations in the Contract Documents by:** 1) written approval of specific variations set forth in Shop Drawings when Seller has duly noted such variations as required in Paragraph 5.06.C.4, or 2) a Field Order.

**9.04 Rejecting Non-Conforming Goods and Special Services**

**A. Engineer will have the authority to disapprove or reject Goods and Special Services that Engineer believes to be non-conforming.** Engineer will also have authority to require special inspection or testing of the Goods or Special Services as provided in Paragraph 8.01 whether or not the Goods are fabricated or installed, or the Special Services are completed.

**9.05 Decisions on Requirements of Contract Documents**

**A. Engineer will be the initial interpreter of the Contract Documents and judge of the acceptability of the Goods and Special Services.** Claims, disputes and other matters relating to the acceptability of the Goods and Special Services or the interpretation of the requirements of the Contract Documents pertaining to Seller's performance will be referred initially to Engineer in writing with a request for a formal decision in accordance with this paragraph.

**B. When functioning as interpreter and judge under this Paragraph 9.05,** Engineer will not show partiality to Buyer or Seller and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by Engineer pursuant to this Paragraph 9.05 with respect to any such Claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in Paragraph 10.07) will be a condition precedent to any exercise by Buyer or Seller of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such Claim, dispute, or other matter.

**9.06 Claims and Disputes**

**A. Notice:** Written notice of each Claim relating to the acceptability of the Goods and Special Services or the interpretation of the requirements of the Contract Documents pertaining to either party's performance shall be delivered by the claimant to Engineer and the other party to the Agreement within 15 days after the occurrence of the event giving rise thereto, and written supporting data shall be submitted to Engineer and the other party within 45 days after such occurrence unless Engineer allows an additional period of time to ascertain more accurate data.

**B. Engineer's Decision:** Engineer will review each such Claim and render a decision in writing within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.

**C. If Engineer does not render a formal written decision on a Claim within the time stated in Paragraph 9.06.B.,** Engineer shall be deemed to have issued a decision denying the Claim in its entirety 31 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.

**D. Engineer's written decision on such Claim or a decision denying the Claim in its entirety that is deemed to have been issued pursuant to Paragraph 9.06.C,** will be final and binding upon Buyer and Seller 30 days after it is issued unless within 30 days of issuance Buyer or Seller appeals Engineer's decision by initiating the mediation of such

Claim in accordance with the dispute resolution procedures set forth in Article 13.

E. If Article 13 has been amended to delete the mediation requirement, then Buyer or Seller may appeal Engineer's decision within 30 days of issuance by following the alternative dispute resolution process set forth in Article 13, as amended; or if no such alternative dispute resolution process has been set forth, Buyer or Seller may appeal Engineer's decision by 1) delivering to the other party within 30 days of the date of such decision a written notice of intent to submit the Claim to a court of Illinois, Kane County, and 2) within 60 days after the date of such decision instituting a formal proceeding in a court of Illinois, Kane County.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 9.06.

G. The parties agree to endeavor to avoid or resolve Claims through direct, good faith discussions and negotiations whenever practicable. Such discussions and negotiations should at the outset address whether the parties mutually agree to suspend the time periods established in this Paragraph 9.06; if so, a written record of such mutual agreement should be made and jointly executed.

## **ARTICLE 10- PAYMENT**

### *10.01 Applications for Progress Payments*

A. Seller shall submit to Buyer for Engineer's review Applications for Payment filled out and signed by Seller and accompanied by such supporting documentation as is required by the Contract Documents and also as Buyer or Engineer may reasonably require. The timing and amounts of progress payments shall be as stipulated in the Agreement.

1. The first application for Payment will be submitted after review by Engineer of all Shop Drawings and of all Samples required by the Contract Documents.

2. The second Application for Payment will be submitted after receipt of the Goods has been acknowledged in accordance with Paragraph 8.01.B and will be accompanied by a bill of sale, invoice, or other documentation reasonably satisfactory to Buyer warranting that Buyer has rightfully received good title to the Goods from Seller and that, upon payment, the Goods will be free and clear of all liens. Such documentation will include releases and waivers from all parties with viable lien rights. In the case of multiple deliveries of Goods, additional Applications for Payment accompanied by the required documentation will be submitted as Buyer acknowledges receipt of additional items of the Goods.

### *10.02 Review of Applications for Progress Payments*

A. Engineer will, within ten days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Buyer, or return the Application to Seller indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Seller may make the necessary corrections and resubmit the Application.

1. Engineer's recommendation of payment requested in the first Application for Payment will constitute a representation by Engineer, based on Engineer's review of the Application for Payment and the accompanying data that the Shop Drawings and Samples have been reviewed and approved as required by the Contract Documents and Seller is entitled to payment of the amount recommended.

2. Engineer's recommendation of payment requested in the Application for Payment submitted upon Buyer's acknowledgment of receipt of the Goods will constitute a representation by Engineer, based on Engineer's review of the Application for Payment and the accompanying data Seller is entitled to payment of the amount recommended. Such recommendation will not constitute a representation that Engineer has made a final inspection of the Goods, that the Goods are free from non-conformities, acceptable or in conformance with the Contract Documents, that Engineer has made any investigation as to Buyer's title to the Goods, that exhaustive or continuous inspections have been made to check the quality or the quantity of the Goods beyond the responsibilities specifically assigned to Engineer in the Contract Documents or that there may not be other

matters or issues between the parties that might entitle Seller to additional payments by Buyer or Buyer to withhold payment to Seller.

3. Engineer may refuse to recommend that all or any part of a progress payment be made, or Engineer may nullify all or any part of any payment previously recommended if, in Engineer's opinion, such recommendation would be incorrect or if on the basis of subsequently discovered evidence or subsequent inspections or tests Engineer considers such refusal or nullification necessary to protect Buyer from loss because the Contract Price has been reduced, Goods are found to be non-conforming, or Seller has failed to furnish acceptable Special Services.

### *10.03 Amount and Timing of Progress Payments*

A. Subject to Paragraph 10.02.A., the amounts of the progress payments will be as provided in the Agreement. Buyer shall within 60 days after receipt of each Application for Payment with Engineer's recommendation pay Seller the amount recommended; but, in the case of the Application for Payment upon Buyer's acknowledgment of receipt of the Goods, said 60-day period may be extended for so long as is necessary (but in no event more than 60 days) for Buyer to examine the bill of sale and other documentation submitted therewith. Buyer shall notify Seller promptly of any deficiency in the documentation and shall not unreasonably withhold payment.

### *10.04 Suspension of or Reduction in Payment*

A. Buyer may suspend or reduce the amount of progress payments, even though recommended for payment by Engineer, under the following circumstances:

1. Buyer has reasonable grounds to conclude that Seller will not furnish the Goods or the Special Services in accordance with the Contract Documents, and

2. Buyer has requested in writing assurances from Seller that the Goods and Special Services will be delivered or furnished in accordance with the Contract Documents, and Seller has failed to provide adequate assurances within ten days of Buyer's written request.

B. If Buyer refuses to make payment of the full amount recommended by Engineer, Buyer will provide Seller and Engineer immediate written notice stating the reason for such action and promptly pay Seller any amount remaining after deduction of the amount withheld. Buyer shall promptly pay Seller the amount withheld when Seller corrects the reason for such action to Buyer's satisfaction.

### *10.05 Final Application for Payment*

A. After Seller has corrected all non-conformities to the reasonable satisfaction of Buyer and Engineer, furnished all Special Services, and delivered all documents required by the Contract Documents, Engineer will issue to Buyer and Seller a notice of acceptance. Seller may then make application for final payment following the procedure for progress payments. The final Application for Payment will be accompanied by all documentation called for in the Contract Documents, a list of all unsettled Claims, and such other data and information as Buyer or Engineer may reasonably require.

### *10.06 Final Payment*

A. If, on the basis of final inspection and the review of the final Application for Payment and accompanying documentation, Engineer is reasonably satisfied that Seller has furnished the Goods and Special Services in accordance with the Contract Documents, and that Seller's has fulfilled all other obligations under the Contract Documents, then Engineer will, within ten days after receipt of the final Application for Payment, recommend in writing final payment subject to the provisions of Paragraph 10.07 and present the Application to Buyer. Otherwise, Engineer will return the Application to Seller, indicating the reasons for refusing to recommend final payment, in which case Seller shall make the necessary corrections and resubmit the Application for payment. If the Application and accompanying documentation are appropriate as to form and substance, Buyer shall, within 60 days after receipt thereof, pay Seller the amount recommended by Engineer, less any sum Buyer is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages to which Buyer is entitled.

### 10.07 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
1. a waiver of all Claims by Buyer against Seller, except Claims arising from unsettled liens from non-conformities in the Goods or Special Services appearing after final payment, from Seller's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Seller's continuing obligations under the Contract Documents; and
  2. a waiver of all Claims by Seller against Buyer (other than those previously made in accordance with the requirements herein and listed by Seller as unsettled as required in Paragraph 10.05.A, and not resolved in writing).

## **ARTICLE 11 - CANCELLATION, SUSPENSION, AND TERMINATION**

### 11.01 *Cancellation*

A. Buyer has the right to cancel the Contract, without cause, at any time prior to delivery of the Goods by written notice. Cancellation pursuant to the terms of this paragraph shall not constitute a breach of contract by Buyer. Upon cancellation:

1. Buyer shall pay Seller for the direct costs incurred in producing any Goods that Seller has specially manufactured for the Project, plus a fair and reasonable amount for overhead and profit.
2. For Goods that are not specially manufactured for the Project, Seller shall be entitled to a restocking charge of 10 percent of the unpaid Contract Price of such Goods.

### 11.02 *Suspension of Performance by Buyer*

A. Buyer has the right to suspend performance of the Contract for up to a maximum of ninety days, without cause, by written notice. Upon suspension under this paragraph, Seller shall be entitled to an increase in the Contract Times and Contract Price caused by the suspension, provided that performance would not have been suspended or delayed for causes attributable to Seller.

### 11.03 *Suspension of Performance by Seller*

A. Subject to the provisions of Paragraph 5.07.B, Seller may suspend the furnishing of the Goods and Special Services only under the following circumstance:

1. Seller has reasonable grounds to conclude that Buyer will not perform its future payment obligations under the Contract; and,
2. Seller has requested in writing assurances from Buyer that future payments will be made in accordance with the Contract, and Buyer has failed to provide such assurances within ten days of Seller's written request.

### 11.04 *Breach and Termination*

#### A. Buyer's Breach:

1. Buyer shall be deemed in breach of the Contract if it fails to comply with any material provision of the Contract Documents, including but not limited to:
  - a. wrongful rejection or revocation of Buyer's acceptance of the Goods,
  - b. failure to make payments in accordance with the Contract Documents, or
  - c. wrongful repudiation of the Contract.
2. Seller shall have the right to terminate the Contract for cause by declaring a breach should Buyer fail to comply with any material provisions of the Contract. Upon termination, Seller shall be entitled to all remedies provided by Laws and Regulations.

a. In the event Seller believes Buyer is in breach of its obligations under the Contract, Seller shall provide Buyer with reasonably prompt written notice setting forth in sufficient detail the reasons for declaring that it believes a breach has occurred. Buyer shall have seven days from receipt of the written notice declaring the breach (or such longer period of time as Seller may grant in writing) within which to cure or to proceed diligently to cure such alleged breach.

#### B. Seller's Breach:

1. Seller shall be deemed in breach of the Contract if it fails to comply with any material provision of the Contract Documents, including, but not limited to:

- a. failure to deliver the Goods or perform the Special Services in accordance with the Contract Documents,
- b. wrongful repudiation of the Contract, or
- c. delivery or furnishing of non-conforming Goods and Special Services.

2. Buyer may terminate Seller's right to perform the Contract for cause by declaring a breach should Seller fail to comply with any material provision of the Contract Documents. Upon termination, Buyer shall be entitled to all remedies provided by Laws and Regulations.

a. In the event Buyer believes Seller is in breach of its obligations under the Contract, and except as provided in Paragraph 11.04.B.2.b, Buyer shall provide Seller with reasonably prompt written notice setting forth in sufficient detail the reasons for declaring that it believes a breach has occurred. Seller shall have seven days from receipt of the written notice declaring the breach (or such longer period of time as Buyer may grant in writing) within which to cure or to proceed diligently to cure such alleged breach.

b. If and to the extent that Seller has provided a performance bond under the provisions of Paragraph 4.01, the notice and cure procedures of that bond, if any, shall supersede the notice and cure procedures of Paragraph 11.04.B.2.a.

## **ARTICLE 12 - LICENSES AND FEES**

### 12.01 *Intellectual Property and License Fees*

A. Unless specifically stated elsewhere in the Contract Documents, Seller is not transferring any intellectual property rights, patent rights, or licenses for the Goods delivered. However, in the event the Seller is manufacturing to Buyer's design, Buyer retains all intellectual property rights in such design.

B. Seller shall pay all license fees and royalties and assume all costs incident to the use or the furnishing of the Goods, unless specified otherwise by the Contract Documents.

### 12.02 *Seller's Infringement*

A. Subject to Paragraph 12.01.A, Seller shall indemnify and hold harmless Buyer, Engineer and their officers, directors, members, partners, employees, agents, consultants, contractors, and subcontractors from and against all claims, costs, losses, damages, and judgments (including but not limited to all reasonable fees and charges of engineers, architects, attorneys and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement or alleged infringement of any United States or foreign patent or copyright by any of the Goods as delivered hereunder.

B. In the event of suit or threat of suit for intellectual property infringement, Buyer will promptly notify Seller of receiving notice thereof.

C. Seller shall promptly defend the claim or suit, including negotiating a settlement. Seller shall have control over such claim or suit, provided that Seller agrees to bear all expenses and to satisfy any adverse judgment thereof.

1. If Seller fails to defend such suit or claim after written notice by Buyer, Seller will be bound in any subsequent suit or claim against Seller by Buyer by any factual determination in the prior suit or claim.

2. If Buyer fails to provide Seller the opportunity to defend such suit or claim after written notice by Seller, Buyer shall be barred from any remedy against Seller for such suit or claim.

D. If a determination is made that Seller has infringed upon intellectual property rights of another, Seller may obtain the necessary licenses for Buyer's benefit, or replace the Goods and provide related design and construction as necessary to avoid the infringement at Seller's own expense.

### 12.03 *Buyer's Infringement*

A. Buyer shall indemnify and hold harmless Seller, and its officers, directors, partners, employees, agents, consultants, contractors, and subcontractors from and against all claims, costs, losses, damages, and judgments (including but not limited to all reasonable fees and charges of engineers, architects, attorneys and other professionals and all court or arbitration or other dispute

resolution costs) arising out of or relating to any infringement or alleged infringement of any United States or foreign patent or copyright caused by Seller's compliance with Buyer's design of the Goods or Buyer's use of the Goods in combination with other materials or equipment in any process (unless intent of such use was known to Seller and Seller had reason to know such infringement would result).

B. In the event of suit or threat of suit for intellectual property infringement, Seller must after receiving notice thereof promptly notify Buyer.

C. Upon written notice from Seller, Buyer shall be given the opportunity to defend the claim or suit, including negotiating a settlement. Buyer shall have control over such claim or suit, provided that Buyer agrees to bear all expenses and to satisfy any adverse judgment thereof.

1. If Buyer fails to defend such suit or claim after written notice by Seller, Buyer will be bound in any subsequent suit or claim against Buyer by Seller by any factual determination in the prior suit or claim.

2. If Seller fails to provide Buyer the opportunity to defend such suit or claim after written notice by Buyer, Seller shall be barred from any remedy against Buyer for such suit or claim.

#### 12.04 Reuse of Documents

A. Neither Seller nor any other person furnishing any of the Goods and Special Services under a direct or indirect contract with Seller shall: (1) acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions; or (2) reuse any of such Drawings, Specifications, other documents, or copies thereof on any other project without written consent of Buyer and Engineer and specific written verification or adaptation by Engineer. This prohibition will survive termination or completion of the Contract. Nothing herein shall preclude Seller from retaining copies of the Contract Documents for record purposes.

#### 12.05 Electronic Data

A. Unless otherwise stated, copies of data furnished by Buyer or Engineer to Seller, or by Seller to Buyer or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. The transferring party will correct any errors detected within the 60-day acceptance period.

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

### **ARTICLE 13 - DISPUTE RESOLUTION**

#### 13.01 Dispute Resolution Method

A. Either Buyer or Seller may initiate the mediation of any Claim decided in writing by Engineer under Paragraph 9.06.B or 9.06.C before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the Engineer's decision from becoming final and binding. The venue for any mediation proceeding shall be in an agreed upon location in Kane County, IL.

B. Buyer and Seller shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the mediation process does not result in resolution of the Claim, then Engineer's written decision under Paragraph 9.06.B or a denial pursuant to Paragraph 9.06.C shall become final and binding 30 days after termination of the mediation unless, within that time period, Buyer or Seller:

1. elects in writing to invoke any dispute resolution process provided for in Article 13, or

2. agrees with the other party to submit the Claim to another dispute resolution process, or

3. if no dispute resolution process has been provided for in Article 13, delivers to the other party written notice of the intent to submit the Claim to a court of competent jurisdiction, and within 60 days of the termination of the mediation institutes such formal proceeding.

#### 13.02 Arbitration

A. All Claims or counterclaims, disputes, or other matters in question between Buyer and Seller arising out of or relating to the Contract Documents or the breach thereof (except for Claims which have been waived by the making or acceptance of final payment as provided by Paragraph 10.07) not resolved under the provisions of Paragraph 13.01 will be decided by binding arbitration in accordance with the rules of American Arbitration Association, subject to the conditions and limitations of this Paragraph. This agreement to arbitrate and any other agreement or consent to arbitrate entered into will be specifically enforceable under the prevailing law of any court having jurisdiction. Arbitration shall take place in or near Kane County, Illinois.

B. No demand for arbitration of any Claim or counterclaim, dispute, or other matter that is required to be referred to Engineer initially for decision in accordance with Paragraph 9.06 will be made until the earlier of: (i) the date on which Engineer has rendered a written decision, or (ii) the 31st day after the parties have presented their final evidence to Engineer if a written decision has not been rendered by Engineer before that date. Subject to the provisions of Paragraph 13.02.A, no demand for arbitration of any such Claim or counterclaim, dispute, or other matter will be made later than 30 days after the date on which Engineer has rendered a written decision in respect thereof in accordance with Paragraph 9.06; and the failure to demand arbitration within said 30 day period will result in Engineer's decision being final and binding upon Buyer and Seller. If Engineer renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence but will not supersede the arbitration proceedings, except where the decision is acceptable to the parties concerned.

C. Notice of the demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitrator or arbitration provider, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the 30 day period specified in Paragraph 13.02.B, and in all other cases within a reasonable time after the Claim or counterclaim, dispute, or other matter in question has arisen, and in no event shall any such demand be made after the date when institution of legal or equitable proceedings based on such Claim or other dispute or matter in question would be barred by the applicable statute of limitations.

D. No arbitration arising out of or relating to the Contract Documents shall include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer's consultants and the officers, directors, partners, agents, employees or consultants of any of them) who is not a party to this Contract unless:

1. the inclusion of such other individual or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration; and

2. such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings.

E. The award rendered by the arbitrator shall be in writing and include: (i) a concise breakdown of the award; (ii) a written explanation

of the award specifically citing the Contract Document provisions deemed applicable and relied on in making the award.

F. The award will be consistent with the agreement of the parties and final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal.

#### **ARTICLE 14- MISCELLANEOUS**

##### *14.01 Giving Notice*

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

##### *14.02 Controlling Law*

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

B. In the case of any conflict between the express terms of this Contract and the Uniform Commercial Code, as adopted in the state whose law governs, it is the intent of the parties that the express terms of this Contract shall apply.

##### *14.03 Computation of Time*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a

Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day shall be omitted from the computation.

##### *14.04 Cumulative Remedies*

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

##### *14.05 Survival of Obligations*

A. All representations, indemnifications, warranties and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Goods and Special Services and termination or completion of the Agreement.

##### *14.06 Entire Agreement*

A. Buyer and Seller agree that this Agreement is the complete and final agreement between them, and supersedes all prior negotiations, representations, or agreements, either written or oral. This Agreement may not be altered, modified, or amended except in writing signed by an authorized representative of both parties

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These Supplementary Conditions amend or supplement the Standard General Conditions for Procurement Contracts. All provisions that are not so amended or supplemented remain in full force and effect.

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

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

## **ARTICLE 1 – DISPUTE RESOLUTION**

### *SC-13.02 Arbitration*

Delete Paragraph 13.02 of the General Conditions in its entirety.

END OF DOCUMENT

**PART 1 GENERAL**

1.01 SECTION INCLUDES

- A. Goods and Special Services covered by Contract Documents.
- B. Agreement.
- C. Goods and Special Services by others.

1.02 GOODS AND SPECIAL SERVICES COVERED BY CONTRACT DOCUMENTS

- A. Goods and Special Services of this Agreement comprises design, fabrication, and delivery F.O.B transformer pad and completely assemble one 34.5kV-12.47kV, 12/16/20MVA power transformer located in Geneva, Illinois for the City of Geneva.

1.03 AGREEMENT

- A. Provides Goods and Special Services under single lump sum Agreement.

1.04 WORK BY OTHERS

- A. Work on Project which will be executed after delivery of Goods and furnishing Special Services of this Agreement, and which is excluded from this Agreement, as follows:
  - 1. Connection of transformer to high-voltage and low-voltage cables and bus work.
  - 2. Connection to power and control cables.
  - 3. Concrete pad foundation.

**PART 2 PRODUCTS**

NOT USED

**PART 3 EXECUTION**

NOT USED

END OF SECTION

## **PART 1 GENERAL**

### 1.01 SUBMITTAL PROCEDURES

- A. Deliver submittals to person listed below when required by Specification Sections:
  - 1. Engineer: Mr. Philip Schulz  
Email: [schulzphil@stanleygroup.com](mailto:schulzphil@stanleygroup.com)  
Stanley Consultants, Inc.  
Stanley Building  
225 Iowa Avenue  
Muscatine, Iowa 52761-3764
- B. Submittals shall be in English language.
- C. Weights, measures, and units shall be English units with SI metric values following in parenthesis.
- D. Symbols and drawings shall conform to ANSI Y32.2/IEEE 315/CSA Z99.

### 1.02 SELLER RESPONSIBILITIES

- A. Review submittals prior to submission.
- B. Determine and verify:
  - 1. Field measurements.
  - 2. Field construction criteria.
  - 3. Catalog numbers and similar data.
  - 4. Conformance to Specifications.
- C. Coordinate each submittal with other submittals and with requirements of Goods and Special Services and of Contract Documents.
- D. Notify Engineer in writing, at time of submission, of any deviations in submittals from requirements of Contract Documents. Any such deviations permitted by Engineer will require modifications of Contract Documents.
- E. Provide space on Shop Drawings for Seller and Engineer stamps.
- F. When Shop Drawings are revised for resubmission, identify all changes made since previous submission.
- G. Submittals containing language imposing duties on others (such as verification of dimensions or supply of related information) inconsistent with contract language shall be null and void.
- H. Submittals shall not be used as media for inquiries for information or for verification of information that must be supplied by others to Seller. Inquiries or verification of information shall be made by separate Seller submittal using Request for Information (RFI) process.
- I. Begin no fabrication of Goods requiring submittal review until return of submittals by Engineer with stamp, as either "Reviewed", "Reviewed as Noted", or "Reviewed as Noted-Resubmit."
- J. Distribute copies of reviewed submittals that carry reviewer stamp as either "Reviewed" or "Reviewed as Noted" as appropriate. Instruct parties to promptly report any inability to comply with requirements.
- K. Submittals not requested will not be recognized or processed.

### 1.03 ENGINEER DUTIES

- A. Review required submittals with reasonable promptness and in accord with schedule, only for general conformance to design concept of Project and compliance with information given in Contract Documents. Review shall not extend to means, methods, sequences, techniques, or procedures of construction or to safety precautions or program incident thereto. Review of a separate item as such will not indicate approval of assembly in which item functions.
- B. Affix stamp and initials or signature, and indicate requirements for resubmittal, or review of submittal. Engineer's action on submittals is classified as follows:
  - 1. Reviewed: Submittal has been reviewed and appears to be in conformance to design concept of Project and Contract Documents. Seller may proceed with fabrication of work in submittal.
  - 2. Reviewed As Noted: Submittal has been reviewed and appears to be in conformance to design concept of Project and Contract Documents, except as noted by reviewer. Seller may proceed with fabrication of work in submittal with modifications and corrections as indicated by reviewer.
  - 3. Reviewed As Noted-Resubmit: Submittal has been reviewed and appears to be in conformance to design concept of Project and Contract Documents, except as noted by reviewer. Seller may proceed with fabrication of work in submittal with modifications and corrections as indicated by reviewer. Seller shall make any corrections indicated by reviewer and resubmit for review.
  - 4. Resubmit: Submittal has been reviewed and appears not to be in conformance to design concept of Project or with Contract Documents. Seller shall not proceed with fabrication of work in submittal, but instead shall make any corrections required by reviewer and resubmit for review.
  - 5. Returned without Review: Submittal is being returned without having been reviewed because: 1) not required by Contract Documents; 2) grossly incomplete; 3) indicates no attempt at conformance to Contract Documents; 4) cannot be reproduced; 5) lacks Seller's completed approval stamp; or 6) lacks design professional's seal when required by law or Contract Documents. If submittal is required by Contract Documents, Seller shall not proceed with Work as detailed in submittal, but instead shall correct defects and resubmit for review.
  - 6. For Information Only: Submittal has not been reviewed but is being retained for informational purposes only.
  - 7. Void: Submittal is voided because it is no longer required or has been superseded by another submittal.
- C. Return 1 copy of submittals to Seller. Seller shall make additional copies as required.
- D. Review of submittals shall not relieve Seller from responsibility for any variation from Contract Documents unless Seller has, in writing, called Engineer's attention to such variation at time of submission, and Engineer has given written concurrence pursuant to Contract Documents to specific variation, nor shall any concurrence by Engineer or other reviewer relieve Seller from responsibility for errors or omissions in submittals.

### 1.04 SHOP DRAWINGS SUBMITTALS

- A. Submit for review for limited purpose of checking for conformance to information given and design concept expressed in Contract Documents. Produce copies and distribute in accordance with article "Submittal Procedures" and for record documents purposes as described in Section 01 70 00.
- B. Designate in construction schedule, or in separate coordinated submittal schedule, dates for submission and dates that reviewed submittals will be needed.
- C. Make submittals promptly in accordance with approved schedule, and in such sequence as to cause no delay in Work or in work of other Sellers.
- D. Present in clear and thorough manner, complete with respect to dimensions, design criteria, materials of construction, and like information to enable review of information as required.
- E. Details shall be identified by reference to sheet and detail, schedule or room numbers shown on Drawings.

- F. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- G. Equipment which is identified on Contract Documents with tag number or name shall be identified on Shop Drawing with same tag.
- H. Schedule submittals to expedite Project. Coordinate submission of related items.
- I. For each submittal for review, allow 15 days excluding delivery time to and from Seller.
- J. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of completed Work.
- K. Shop Drawings shall be submitted in electronic format.
  - 1. Submit electronic copy on CD, E-mail files.
  - 2. Text documents shall be submitted in .pdf format.
  - 3. Drawings shall be submitted in .pdf or .tif format.
  - 4. Electronic submittal shall be suitable for reproduction in black and white.
- L. Number required:
  - 1. If Shop Drawings are not submitted in electronic format, submit 3 copies of each Shop Drawing.
  - 2. Copies of Shop Drawings submitted shall be black line on white background.
  - 3. Reviewer will reproduce additional copies of Shop Drawings as required for internal distribution.
  - 4. Shop Drawings shall be suitable for reproduction in black and white. Shop Drawings submitted which are not suitable for reproduction will not be reviewed.
  - 5. If Seller will not grant permission to reviewer to reproduce Shop Drawings, submit **3** copies of each Shop Drawing.
  - 6. Samples: Submit number stated in each Specification section.
  - 7. Drawings larger than 8-1/2" x 11" shall be rolled.
- M. Submittals shall contain:
  - 1. Date of submission and dates of any previous submissions.
  - 2. Project title and number.
  - 3. Contract identification.
  - 4. Names of:
    - a. Seller.
    - b. Supplier.
    - c. Manufacturer.
  - 5. Identification of product, with Specification section number and article number.
  - 6. Field dimensions, clearly identified as such.
  - 7. Relation to adjacent or critical features of Work or materials.
  - 8. Applicable standards, such as ASTM or Federal Specification numbers.
  - 9. Identification of deviations from Contract Documents.
  - 10. Identification of revisions on resubmittals.
  - 11. An 8" x 3" blank space for Seller and reviewer stamps.
  - 12. Indication of Seller's approval, initialed or signed, with wording substantially as follows:

"Seller represents to Buyer and Engineer that Seller has either determined and verified all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data, or assumes full responsibility for doing so and has reviewed or coordinated each submittal with requirements of Work and Contract Documents."
  - 13. If Contract Documents include performance specifications stating required results which can be verified as meeting stipulated criteria, so that further design by Seller prior to fabrication is necessary, Submittal depicting such design must be prepared under seal of professional engineer registered licensed in appropriate state and Submittal shall be signed and sealed in accordance with applicable regulations and with following certification statement:

"I hereby certify that this engineering document was prepared by me or under my direct personal supervision, that I am a duly registered licensed professional engineer under laws of state of Illinois and I accept responsibility for adequacy of this document to meet criteria stipulated in Contract Documents."

N. Product Data:

1. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
2. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

O. Design data:

1. Submit for Engineer's knowledge as contract administrator or for Buyer.
2. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

P. Data sheets:

1. Data sheets may require information not known until Seller's engineering is complete. Furnish estimated values based on good engineering judgment. Estimated values shall be identified by placement of "(est.)" next to value.
2. Data Sheets shall be updated and resubmitted by Seller once final values are known.
3. Do not leave items blank or labeled "To Be Determined" or "Later."
4. Do not submit manufacturer Product Data instead of completed data sheets.

Q. Test reports:

1. Submit for Engineer's knowledge as contract administrator or for Buyer.
2. Submit test reports for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

R. Certificates:

1. When specified in individual specification sections, submit certification by manufacturer, installation/application subcontractor.
2. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
3. Certificates may be recent or previous test results on material or product, but must be acceptable to reviewer.

S. Manufacturer's instructions:

1. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, adjusting, and finishing, to Engineer for delivery to Buyer in quantities specified for Product Data.
2. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

T. Manufacturer's field reports:

1. Submit report in duplicate within 30 days of observation for information.
2. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

U. Erection drawings:

1. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.
2. Data indicating inappropriate or unacceptable Work may be subject to action by Engineer or Buyer.

V. Samples:

1. Samples for selection as specified in product sections:
  - a. Submit for aesthetic, color, or finish selection.
  - b. Submit samples of finishes from full range of manufacturers' standard colors, textures, and patterns for selection.
2. Submit to illustrate functional and aesthetic characteristics of product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
3. Include identification on each sample, with full Project information.
4. Submit number specified in individual Specification Sections; 1 of which will be retained by Engineer.
5. Reviewed Samples which may be used in Work are indicated in individual Specification Sections.
6. Samples will not be used for testing purposes unless specifically stated in specification section.
7. Field Samples and mock-ups:
  - a. Erect at Project Site, at location acceptable to Engineer.
  - b. Size or area: That specified in respective Specification Section.
  - c. Fabricate each Sample and mock-up complete and finished.
  - d. Remove mock-ups upon acceptance of Work or when acceptable to Engineer.

W. Operations and maintenance manuals:

1. Designate in construction schedule, or in separate coordinated schedule, dates for submission and dates that reviewed operations and maintenance manuals will be needed.
2. Operations and maintenance manuals shall be presented in clear and thorough manner, complete with respect to dimensions, design criteria, materials of construction, and like information to enable reviewer to review information as required. Details shall be identified by reference to sheet and detail, schedule or room numbers shown on Drawings.

1.05 RESUBMISSION REQUIREMENTS

- A. Make any corrections or changes in submittals required by Engineer and resubmit until stamped as either "Reviewed," "Reviewed as Noted," or "For Information Only."
- B. Text and depictions changed on Submittal shall be back-circled (clouded).
- C. Engineer will assume that portions of Submittal not back-circled have not been changed by Seller from previous submission.
- D. Indicate revision number and date in document revision block.

1.06 DISTRIBUTION

- A. Distribute reproductions of Shop Drawings which carry Engineer stamp as either "Reviewed" or "Reviewed as Noted" to:
  1. Record Documents file.
  2. Supplier or fabricator.
- B. Distribute Samples which carry Engineer stamp as either "Reviewed" or "Reviewed as Noted" as directed by Engineer.

1.07 SUBMITTAL TRANSMITTAL FORM PROCEDURES

- A. Submittals shall be accompanied by completed copies of Submittal Transmittal form, bound herein. An electronic version of transmittal form is available and may be obtained from Engineer. Reproduce additional copies required.
- B. Submit **1** copy of transmittal form for initial submittals and resubmittals. Sequentially number transmittal form. Revise submittals with original number and sequential alphabetic suffix.

- C. Prior to submittal, complete information under heading "Seller's Transmittal."
- D. Engineer will complete information under "Reviewer's Action."
- E. Do not include submittals for more than one section of Specifications on Submittal Transmittal form.
- F. Identify project title, location, and number and contract title and number.
- G. Identify preparer name and, submittal number, including preparer's submittal revision number.
- H. A brief description under "Title" should clearly identify specific application of equipment or material covered by Submittal, utilizing where possible same title used in Drawings and Specifications.
- I. Identify Specification Section number.
- J. Apply Seller's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with requirements of Contract Documents.

**PART 2 PRODUCTS**

NOT USED

**PART 3 EXECUTION**

NOT USED

END OF SECTION



## **PART 1 GENERAL**

### 1.01 SERVICE ENGINEER RESPONSIBILITIES

- A. Contractor shall provide qualified Service Engineer(s), as necessary to:
  - 1. Supervise assembly of equipment.
  - 2. Inspect equipment after it is installed to assure that all details of installation are correct and that equipment is prepared for operation in accordance with manufacturer's instructions and recommendations.
  - 3. Check connections to equipment and adjust, or supervise adjustment of, control and indicating devices after equipment has been installed and connected.
  - 4. Fully instruct Owner's operating personnel in operation and maintenance of equipment.
  - 5. Provide Engineer with duplicate copies of final alignment and clearance measurements on all rotating or reciprocating equipment. Measurements shall clearly identify each piece of equipment.
  - 6. Supervise preliminary operation of equipment and necessary adjustments.
- B. Presence of Service Engineer will in no way relieve Contractor of any responsibility assumed under Agreement.
- C. Work and abilities of Service Engineer shall be subject to review of Engineer. If Engineer determines that any Service Engineer is not properly qualified, Contractor shall replace Service Engineer upon written notification by Engineer.
- D. Contractor shall provide continuity in assignment of Service Engineer to Work. In event substitution of Service Engineer is made which is not at request of Engineer, substitute's time for "familiarization" shall be at Contractor's expense.
- E. Service Engineer shall make trips only with approval of Engineer, shall report in person daily to Resident Project Representative while at site, and shall submit written record of time spent at site and report on results of trip to site to Resident Project Representative weekly. Per diem unit adjustment price is based on 8 hours at site each day and includes out-of-pocket expenses at site. Only that time spent by Service Engineer at site with Engineer's approval shall be credited against total service day as estimated in Agreement. Hours worked in excess of normal 8 hours in any day will be paid for at one-eighth of per diem rate per hour.
- F. If any of Service Engineer's time spent at site or if any of his trips to site are required to make corrections to equipment supplied under Agreement resulting from defective design, material or workmanship used in manufacture of equipment, such time and trips will be at Contractor's expense and will not be counted against number of working days or trips specified, nor will unit adjustment prices apply.
- G. Contractor will provide, from manufacturer of equipment, Service Engineer who will perform functions specified for equipment provided Contract Documents.
  - 1. Contractor shall pay for cost of time and trips to site of Service Engineer provided by Contractor if additional time or trips are required because of defective workmanship, materials, or equipment furnished under this Agreement.
  - 2. Engineer will be sole determining agent as to reasonableness of Service Engineer's claim for added compensation.
- H. Service Engineer shall make trips only with approval of Engineer, shall report in person daily to Resident Project Representative while at site, and shall submit written record of time spent at site and report on results of trip to site to Resident Project Representative weekly. Per diem unit adjustment price is based on 8 hours each day. Hours worked in excess of normal 8 hours in any day will be paid for at one-eighth of per diem rate per hour.
- I. If any of Service Engineer's time spent at site or if any of his trips to site are required to make corrections to equipment supplied under Agreement resulting from defective design, material, or

workmanship used in manufacture of equipment, such time and trips will be at Contractor's expense and will not be counted against number of working days or trips specified, nor will unit \*adjustment\* prices apply.

1.02 SUPERINTENDENT RESPONSIBILITIES

- A. Contractor shall provide qualified person to act as superintendent for unloading and placement of transformer on existing concrete pad and take responsibility for the following:
1. Maintaining site safety during unloading and placement.
  2. Instruct and advise crew during unloading and placement taking care not to damage existing construction.
  3. Inspect completed job for compliance with requirements of specification.

**PART 2 PRODUCTS**

NOT USED

**PART 3 EXECUTION**

NOT USED

END OF SECTION

## **PART 1 GENERAL**

### 1.01 PRODUCTS

- A. Provide products of qualified manufacturers suitable for intended use. Provide products of each type by a single manufacturer unless specified otherwise.
- B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
- C. Provide interchangeable components of the same manufacturer for components being replaced.

### 1.02 PRODUCT DELIVERY REQUIREMENTS

- A. Transport and handle products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

### 1.03 RECEIVING, UNLOADING AND STORING

- A. Unload equipment as soon as possible after arrival. Contractor shall pay freight railcar and truck demurrage, detention, and any other costs which may be billed to Owner due to failure to unload railcars or trucks within time required by freight companies.
- B. Use of bare wire rope slings for unloading and handling equipment and materials is prohibited without Owner approval.
- C. Equipment and materials shall be stored and maintained in accordance with manufacturer's recommendations and these specifications.
- D. Provide physical protection for equipment placed in storage.
  - 1. Stored equipment shall be supported above ground and shall be covered with canvas or other heavy-duty sheeting. Cover shall be securely fastened and shall be replaced if torn or otherwise damaged during storage period.
  - 2. Following items shall be stored in weatherproof, heated (minimum 50°F) building complete with bins for storage of small pieces of equipment. Storage inside of existing plant will not be available.
    - a. Electronic instruments and cabinets.
    - b. Electrical equipment with general purpose enclosures.
    - c. Insulation materials.
    - d. Rotating equipment.
    - e. Miscellaneous electronic equipment, gaskets, and small machined parts.
    - f. Instruments and controls.
    - g. Protection panels.
- E. Inspect stored equipment weekly and document activities performed. Renew protective coatings as necessary to preserve fitness of equipment.

- F. Contractor shall provide materials, equipment, and labor required for such storage and maintenance. Contractor shall be accountable for any deterioration of materials or equipment occasioned by improper storage or maintenance, and shall recondition, repair, or replace any such materials or equipment without additional cost to Owner.
- G. Electrical equipment or equipment with any electrical components stored outdoors shall be supported at least 12" above ground.

1.04 GENERAL STORAGE

- A. Store products immediately on delivery in accordance with manufacturer's instructions, with seals and labels intact. Protect until installed.
- B. Arrange storage in manner to provide access for maintenance of stored items and for inspection.

1.05 ENCLOSED STORAGE

- A. Store products subject to damage by elements in substantial weathertight enclosures.
- B. Maintain temperature and humidity within ranges required by manufacturer's instructions.
- C. Provide humidity control and ventilation for sensitive products, as required by manufacturer's instructions.
- D. Store unpacked and loose products on shelves, in bins, or in neat groups of like items.

1.06 EXTERIOR STORAGE

- A. Provide substantial platforms, blocking, or skids, to support fabricated products above ground; slope to provide drainage. Protect products from soiling and staining.
- B. For products subject to discoloration or deterioration from exposure to elements, cover with impervious sheet material. Provide ventilation to avoid condensation.
- C. Store loose granular materials on clean, solid surfaces such as pavement, or on rigid sheet materials, to prevent mixing with foreign matter.
- D. Provide surface drainage to prevent flow or ponding of rainwater.
- E. Prevent mixing of refuse or chemically injurious materials or liquids.

1.07 MAINTENANCE OF STORAGE

- A. Periodically inspect stored products on scheduled basis. Maintain log of inspections, make available to Engineer on request.
- B. Verify storage facilities comply with manufacturer's product storage requirements.
- C. Verify manufacturer required environmental conditions are maintained continually.
- D. Verify surfaces of products exposed to elements are not adversely affected and if weathering of finishes is acceptable under requirements of Contract Documents.

1.08 MAINTENANCE OF EQUIPMENT STORAGE

- A. For mechanical and electrical equipment in long-term storage, manufacturer's service instructions shall accompany each item, with notice of enclosed instructions shown on exterior of package.
- B. Service equipment on regularly scheduled basis, maintaining log of services; submit as record document.

1.09 PRODUCTS LIST

- A. Within 30 days after effective date of Agreement, submit complete list of major products which are proposed for installation electronically to Engineer.
- B. Tabulate products by Specification section number and title.
- C. For products specified only by reference standards, list for each such product:
  - 1. Name and address of manufacturer.
  - 2. Trade name.
  - 3. Model or catalog designation.
  - 4. Manufacturer's data:
    - a. Reference standards.
    - b. Performance test data.

1.10 PRODUCT OPTIONS

- A. For products specified only by reference standard, select product meeting that standard, by any manufacturer.
- B. For products specified by naming several products or manufacturers, select any one of products and manufacturers named which complies with Specifications.
- C. For products specified by naming one or more products or manufacturers and stating "or equal," submit request as for substitutions for any product or manufacturer which is not specifically named.
- D. For products specified by naming only one product and manufacturer, there is no option and no substitution will be allowed.
- E. Whenever Specifications call for item by manufacturer's name and type and additional features of item are specifically required by Specifications, additional features specified shall be provided whether or not they are normally included in standard manufacturer's item listed.

**PART 2 PRODUCTS**

NOT USED

**PART 3 EXECUTION**

NOT USED

END OF SECTION

## **PART 1 GENERAL**

### 1.01 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's review.
- B. Provide submittals to Engineer that are required by governing or other authorities.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

### 1.02 FINAL CLEANING

- A. Execute final cleaning prior to final project assessment.

### 1.03 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
  - 1. Drawings.
  - 2. Specifications.
  - 3. Addenda.
  - 4. Change Orders and other modifications to the Contract.
  - 5. Reviewed Shop Drawings, Product Data, and Samples.
  - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Submit documents to Engineer with claim for final Application for Payment

### 1.04 SPARE PARTS AND MAINTENANCE PRODUCTS

- A. Provide spare parts, maintenance, and extra products in quantities specified in individual specification sections.
- B. Deliver to Project site and place in location as directed; obtain receipt prior to final payment.

### 1.05 PRODUCT WARRANTIES AND PRODUCT BONDS

- A. Obtain warranties and bonds executed in duplicate by responsible subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work.
- B. Execute and assemble transferable warranty documents and bonds from subcontractors, suppliers, and manufacturers.
- C. Verify that documents are in proper form, contain full information, and are notarized.
- D. Co-execute submittals when required.
- E. Provide Table of Contents and assemble in 3-D side ring binder with durable plastic cover.
- F. Submit prior to final Application for Payment.

G. Time of Submittals:

1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty or bond period.

1.06 MAINTENANCE SERVICE

- A. Furnish service and maintenance of components indicated in specification sections during the warranty period.
- B. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- C. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
- D. Maintenance service shall not be assigned or transferred to any agent or Subcontractor without prior written consent of the Owner.

**PART 2 PRODUCTS**

NOT USED

**PART 3 EXECUTION**

NOT USED

END OF SECTION

## **PART 1 GENERAL**

### 1.01 OPERATING AND MAINTENANCE DATA REQUIREMENTS

- A. Operating and maintenance data shall be in English language.
- B. Compile product data and related information appropriate for Owner's maintenance and operation of products furnished under Agreement.
- C. Prepare operating and maintenance data as specified in this section and as referenced in other pertinent sections of Specifications.
- D. Instruct Owner's personnel in maintenance of products and in operation of equipment and systems.

### 1.02 QUALITY ASSURANCE

- A. Preparation of data shall be done by personnel:
  - 1. Trained and experienced in maintenance and operation of described products.
  - 2. Familiar with requirements of this section.
  - 3. Skilled as technical writers to extent required to communicate essential data.
  - 4. Skilled as draftsmen competent to prepare required drawings.

### 1.03 FORM OF SUBMITTALS

- A. Prepare data in form of an instructional manual for use by Owner's personnel.
- B. Format:
  - 1. Sheet size: 8-1/2" x 11" minimum.
  - 2. Paper: 20 lb minimum, white, for typed pages.
  - 3. Text: Manufacturer's printed data, or neatly typewritten.
  - 4. Drawings:
    - a. Provide reinforced punched binder tab, bind in with text.
    - b. Larger size drawings shall be folded to 8-1/2" x 11", and inserted into pockets.
  - 5. Provide fly-leaf for each separate product, or each piece of operating equipment.
    - a. Provide typed description of product, and major component parts of equipment.
    - b. Provide indexed tabs.
  - 6. Cover: Identify each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS." List:
    - a. Title of Project.
    - b. Identity of separate structure as applicable.
    - c. Identity of general subject matter covered in manual.
  - 7. Binders:
    - a. Commercial quality 3-ring binders with durable and cleanable plastic covers.
    - b. Maximum ring size: 3".
    - c. When multiple binders are used, correlate data into related consistent groupings.

### 1.04 CONTENT OF MANUAL

- A. Neatly typewritten table of contents for each volume, arranged in systematic order.
  - 1. Contractor, name of responsible principal, address, and telephone number.
  - 2. List of each product required to be included, indexed to content of volume.
  - 3. List, with each product, name, address, and telephone number of:
    - a. Subcontractor or installer.
    - b. Maintenance contractor, as appropriate.
    - c. Identify area of responsibility of each.
    - d. Local source of supply for parts and replacement and list of recommended spare parts.

4. Identify each product by product name and other identifying symbols as set forth in Contract Documents, including nameplate information and shop order numbers for each item of equipment furnished.
- B. Product data:
  1. Include only those sheets which are pertinent to specific product.
  2. Annotate each sheet to:
    - a. Clearly identify specific product or part installed.
    - b. Clearly identify data applicable to installation.
    - c. Delete references to inapplicable information.
- C. Drawings:
  1. Supplement product data with Drawings as necessary to clearly illustrate:
    - a. Relations of component parts of equipment and systems.
    - b. Control and flow diagrams.
  2. Coordinate Drawings with information in Project record documents to assure correct illustration of completed installation.
  3. Do not use Project record documents as maintenance Drawings.
- D. Written text, as required to supplement product data for particular installation.
  1. Organize in consistent format under separate headings for different procedures.
  2. Provide logical sequence of instructions for each procedure.
- E. Copy of each warranty, Bond, and service contract issued.
  1. Provide information sheet for Owner's personnel, giving:
    - a. Proper procedures in event of failure.
    - b. Instances which might affect validity of warranties or Bonds.

#### 1.05 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Submit 3 hard copies and one PDF copy of complete manual in final form
- B. Contents, for each unit of equipment and system, as appropriate:
  1. Description of unit and component parts:
    - a. Function, normal operating characteristics, and limiting conditions.
    - b. Performance curves, engineering data, and tests.
    - c. Complete nomenclature and commercial number of replaceable parts.
  2. Operating procedures:
    - a. Startup, break-in, routine, and normal operating instructions.
    - b. Regulation, control, stopping, shutdown, and emergency instructions.
    - c. Summer and winter operating instructions.
    - d. Special operating instructions.
  3. Maintenance procedures:
    - a. Routine operations.
    - b. Guide to "trouble-shooting."
    - c. Disassembly, repair, and reassembly.
    - d. Alignment, adjusting, and checking.
  4. Servicing and lubrication schedule: List of lubricants required.
  5. Manufacturer's printed operating and maintenance instructions.
  6. Description of sequence of operation by control manufacturer.
  7. Original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
    - a. Predicted life of parts subject to wear.
    - b. Items recommended to be stocked as spare parts.
  8. As-installed control diagrams by controls manufacturer.
  9. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
  10. Other data as required under pertinent sections of Specifications.

- C. Content, for each electrical and electronic system, as appropriate.
  - 1. Description of system and component parts:
    - a. Function, normal operating characteristics, and limiting conditions.
    - b. Performance curves, engineering data, and tests.
    - c. Complete nomenclature and commercial number of replacement parts.
  - 2. Circuit directories of panelboards:
    - a. Electrical service.
    - b. Controls.
    - c. Communications.
  - 3. As-installed color-coded wiring diagrams.
  - 4. Operating procedures:
    - a. Routine and normal operating instructions.
    - b. Sequences required.
    - c. Special operating instructions.
  - 5. Maintenance procedures:
    - a. Routine operations.
    - b. Guide to "trouble-shooting."
    - c. Disassembly, repair, and assembly.
    - d. Adjustment and checking.
  - 6. Manufacturer's printed operating and maintenance instructions.
  - 7. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
  - 8. Other data as required under pertinent sections of Specifications.
- D. Prepare and include additional data when need for such data becomes apparent during instruction of Owner's personnel.
- E. Additional requirements for operating and maintenance data: Respective sections of Specifications.

#### 1.06 SUBMITTAL SCHEDULE

- A. Preliminary draft:
  - 1. Provide 2 copies with shipped with equipment.
  - 2. Submit 2 copies to Owner.
  - 3. Submit 2 copies to Engineer of proposed formats and outlines of contents prior to start of Work. Engineer will review draft and return 1 copy with comments.
- B. Submit 1 copy of completed data in final form 15 days prior to final inspection or acceptance. Copy will be returned after final inspection or acceptance, with comments.
- C. Submit specified copies of approved data in final form 10 days after final inspection or acceptance.

#### **PART 2 PRODUCTS**

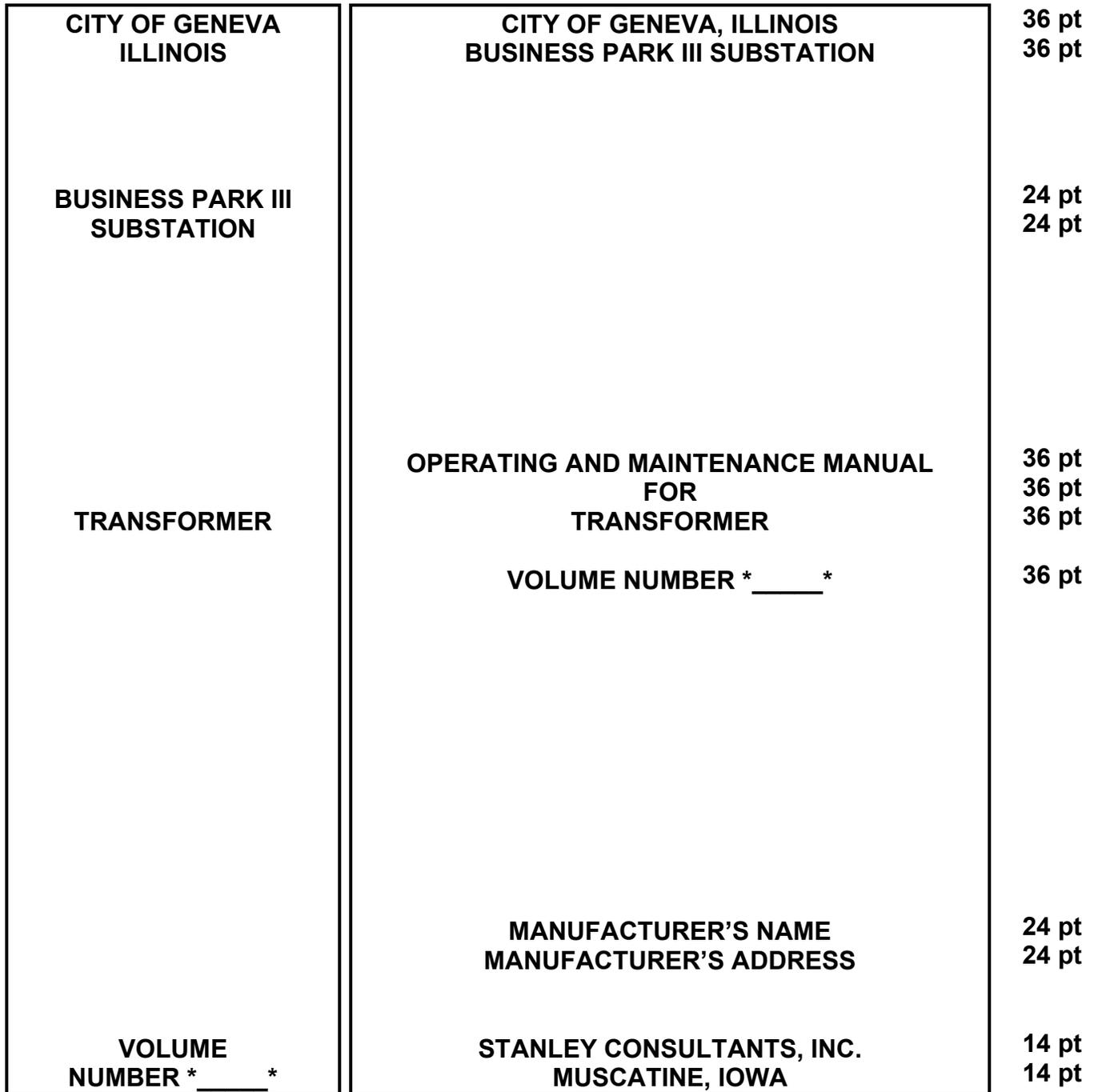
NOT USED

#### **PART 3 EXECUTION**

NOT USED

END OF SECTION

# OPERATING AND MAINTENANCE MANUAL COVER DIAGRAM



**SPINE**

**COVER**

1. Imprinting shall be in Arial font.
  2. Spine printing shall be 12-point.
  3. Cover printing shall be in point sizes indicated.
- \* If more than one volume is necessary, imprint cover with volume numbers.

## **PART 1 GENERAL**

### 1.01 SECTION INCLUDES

- A. General electrical requirements for equipment and services including, but not limited to:
  - 1. Factory wiring.
  - 2. Low voltage cabinets and electrical enclosures.
  - 3. Equipment safety grounding.
  - 4. Low voltage fuses and fuse blocks.
  - 5. Control relays and switches.
  - 6. Pushbuttons.
  - 7. Indicating lights.
  - 8. Alarm and trip contacts.
  - 9. Packaging, identification, and tagging.
  - 10. Nameplates.
  - 11. Grounding and bonding.

### 1.02 INFORMATIONALSUBMITTALS

- A. Submit with Bid: Description of manufacturer's standard factory test procedure for logic systems.
- B. Product Data:
  - 1. List of proposed material identifying manufacturer, type and model number for equipment to be provided for complete job.
  - 2. Manufacturer's catalog sheets marked to indicate specific type, model or catalog number of equipment to be provided.
  - 3. Equipment drawings, elementary diagrams, schematics, wiring, performance curves, instruction manuals, and all other documentation necessary for complete description of material being supplied and as required to support installation, commissioning and maintenance of equipment. Manufacturer's standard connection diagram or schematic showing more than one scheme of connection will not be accepted.
  - 4. Manufacturer's technical descriptions, product data sheets, and applicable manuals for use in protective device system coordination including:
    - a. Fuse manufacturer, type, ratings, and protection curves.
    - b. Circuit breaker manufacturer, type, trip setting ranges, and protection curves.
    - c. Relay trip device ranges, curves, and setting manuals.
    - d. Transformer damage curves.
    - e. CT ratios and saturation curves.
    - f. VT ratings.
  - 5. List of recommended spare parts required for equipment start-up, commissioning and operation.
  - 6. List of special maintenance tools required for installation and operation of equipment.
  - 7. If necessary, provide additional data to clearly demonstrate that proposed alternate equipment meets or exceeds equipment as specified.
  - 8. When requested by Engineer, submit system information, including but not limited to, utility feeders, existing relays, circuit breakers, fuses, and transformers.

### 1.03 CLOSEOUT SUBMITTALS

- A. Operation and maintenance manuals. Provide at minimum:
  - 1. Itemized equipment list.
  - 2. General description and technical data.
  - 3. Receiving, storage, installation, and testing instructions.
  - 4. Operating and maintenance procedures.
  - 5. Complete set of final drawings requiring no further action.
  - 6. Complete documentation of inspections and tests performed, including logs, curves, and certificates. Documentation shall note any replacement of equipment or components that failed during testing.
  - 7. Spare parts list.

8. Lubrication recommendations.
9. Warranty information.

#### 1.04 MAINTENANCE MATERIALS

- A. Extra materials: Provide touchup paint in same type and color to repair at least 25% of finish-painted equipment surface. Paint shall be sufficient to perform touch-up painting in accordance with shop-applied material instructions for repair painting.
- B. Each piece of equipment shall be furnished with special tools as required for installation, maintenance, and dismantling of equipment.
  1. Furnish in quantities as necessary to complete work on schedule.
  2. Tools shall be new and shall become property of Owner.
  3. Tools and intended use shall be identified in assembly instructions. Tools shall only be used for their intended purpose.

#### 1.05 QUALITY ASSURANCE

- A. Manufacturer qualifications:
  1. Manufacturer of equipment specified shall be recognized in industry for normally supplying this type of equipment.
  2. Manufacturer shall be ISO certified.
  3. When requested by Engineer, provide list of similar equipment installations that have employed identical equipment from manufacturer.
- B. Installer qualifications:
  1. Installer shall be skilled in trade and shall have thorough knowledge of products and equipment specified.
  2. Cutting, drilling, trenching, or channeling necessary to properly install equipment shall be performed by competent skilled crafts people in safe, professional manner.
- C. Regulatory requirements: Perform electrical construction in accordance with NEC, local and state codes as applicable to job site.
- D. Materials and equipment furnished for permanent installation shall be new, unused, and undamaged.
- E. Asbestos not allowed.
- F. Parts shall be manufactured to American industry standard sizes and gages to facilitate maintenance and interchangeability. Metric sized components not allowed unless specifically requested and approved.

#### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Pack, ship, handle, and store in accordance with manufacturer's requirements.
- B. Ship equipment completely factory assembled unless physical size, arrangement, configuration, or shipping and handling limitations make this impracticable. Shipping splits and required field assembly shall be identified with equipment submittals.
- C. Costs associated with sections, accessories, or appurtenances requiring field assembly shall be Contractor's responsibility.
- D. Separately packaged parts and accessories shall be consolidated and shipped together with equipment. Mark each container clearly to identify contents and as belonging with main equipment.
  1. Provide individual weatherproof itemized packing slips attached to outside of each container for contents included. Provide duplicate inside each container.

2. Attach master packing list, covering accessory items for equipment, to main piece of equipment.
  3. Mark each container with project identification number for equipment and container number followed by total number of containers.
- E. Equipment shall be suitably protected during shipment, handling, and storage. Damage incurred during shipment shall be repaired at no cost to Owner.
- F. Protect coated surfaces against impact, abrasion, and discoloration.
- G. Electrical equipment and insulation systems shall be protected against ingress of moisture. Use space heaters if necessary to protect against moisture.
- H. Exposed threads shall be greased and protected.
- I. Pipe, tube, and conduit connections shall be closed with rough usage plugs. Seal and tape open ends of piping, tubing, and conduit.
- J. Equipment openings shall have covers, and taped to seal equipment.
- K. Store materials in clean, dry place. Protect from weather, dirt, water, construction debris, and physical damage in accordance with manufacturer's instructions.

#### 1.07 SCHEDULING

- A. Coordinate with Owner early and late shipping and delivery schedules for items requiring storage and handling at Site.

#### 1.08 WARRANTY

- A. Electrical equipment and components shall be provided with the same duration of warranty, as the overall equipment warranty.

### PART 2 PRODUCTS

#### 2.01 DESIGN CRITERIA

- A. Service conditions: Provide equipment and material suitable for intended service and installation at location indicated.
- B. Low-voltage auxiliary and control power.
1. Electrical power for ac control and instrumentation equipment:
    - a. Provide devices necessary for proper operation and protection of equipment during electrical power supply and ambient temperature fluctuations specified.
    - b. Design for continuous operation at any voltage from 85% to 110% of nominal voltage. Dropout voltage shall be 60% of nominal for relays and 75% for contactors and starters.
  2. Electrical power for dc devices:
    - a. Design for continuous operation on ungrounded station battery system, capable of maintaining operation at any voltage from 80% to 112% of nominal voltage.
    - b. Electrical devices served shall not impose ground connection on supply.
- C. Auxiliary power: Design auxiliary equipment for low voltage service, with electrical power designed to operate from one of nominal electrical power sources as follows and as indicated on Drawings:

Volts	Phase	Frequency
120/240	1	60
125	1	dc

## 2.02 FACTORY WIRING

- A. Select cable for electrical and environmental conditions of installation, and suitable for unusual service conditions where encountered.
  - 1. Proper temperature application cable shall be used throughout, but shall be not less than 90°C rated.
  - 2. Conductors routed over hinges shall use extra-flexible stranding.
  - 3. Cable insulation shall be rated for maximum service voltage used, but not less than 600 volts.
  - 4. Splices not allowed.
  
- B. Panel, control cabinet, switchboard, motor control center, and switchgear wiring shall use flame retardant cross-linked polyethylene (XLP) or flame retardant ethylene-propylene rubber (EPR) insulation that meet or exceed requirements of UL 44 for Types SIS, and XHHW.
  - 1. Minimum size: No. 12 AWG.
  - 2. Request tinned copper if used in certain corrosive type environments.
  - 3. Conductors: Annealed bare copper with fine stranding passing IEEE 1202 and UL VW-1 flame test.
  
- C. Instrumentation, thermocouple, and thermocouple extension wire shall use twisted shielded pairs/triads having flame retardant cross-linked polyethylene (XLPE) insulation, and chlorinated polyethylene (CPE) jacket.
  - 1. Minimum size: No. 16 AWG (1.0 mm<sup>2</sup>).
  - 2. Conductor type:
    - a. Instrument: Annealed copper Class B stranding.
    - b. Thermocouple: Solid alloy, ANSI MC 96.1.
  - 3. Provide each pair/triad with shield.
  - 4. Shielding shall consist of aluminum-polyester tape and flexible strand tin-coated No.18 AWG (0.75 mm<sup>2</sup>) copper drain wire.
  - 5. Drain wire for each instrument cable shall be insulated with spaghetti sleeve. One end of shield wire shall be terminated on grounded terminal.
  - 6. Cables shall pass IEEE 1202 and ICEA 70,000 Btu/hr vertical tray flame test, and each conductor shall pass UL VW-1 flame test.
  
- D. Terminations:
  - 1. Conductor terminal connectors shall be insulated, ring tongue, compression type connectors properly sized for conductor and terminal.
    - a. Connectors shall be constructed of copper and shall be tin-plated.
    - b. Interior surface of connector wire barrel shall be serrated; exterior surface of connector wire barrel shall be furnished with crimp guides.
    - c. Connectors shall be Panduit brand terminal connectors, no substitutions permitted.
  - 2. Uninsulated terminal connectors shall be used for conductors terminated on devices equipped with individual fitted covers, such as, but not limited to, control switches and lockout relays.
  - 3. Connections requiring disconnect plug and receptacle type devices shall be provided with factory-terminated conductors on each plug and receptacle.
    - a. Plugs and receptacles shall be factory wired into junction boxes containing terminal blocks for external connections.
    - b. Conductors on disconnect portion of plug-receptacle assemblies shall be in common jacket.
  - 4. Prior to shipment of equipment, remove temporary wiring installed in factory for equipment testing.
  - 5. Current transformers shall terminate on shorting type terminal blocks. Ship with shorting jumpers installed.
  
- E. Identification and labeling:
  - 1. Provide conductor identification sleeve on each end of each internal conductor. Mark each sleeve with opposite end destination identification with nonsmudging, permanent black ink. Sleeves shall be UV-resistant self-adhesive type or PVC, not less than 1/2" long.
  - 2. Permanently label each terminal block, terminal, conductor, relay, breaker, fuse block, and other auxiliary devices to coincide with identification indicated on manufacturer's drawings.

## 2.03 ELECTRICAL ENCLOSURES

- A. Size junction boxes, pull boxes, and enclosures in accordance with requirements of NEC.
- B. Junction boxes and pull boxes 4" (100 mm) trade size or smaller in any dimension shall be galvanized malleable iron, or cast ferrous metal NEMA rated for installed location. Do not use concentric knockouts.
- C. Junction boxes, pull boxes, and electrical enclosures larger than 4" (100 mm) trade size in any dimension shall be as follows, unless required otherwise.
  - 1. NEMA rating for electrical enclosures installed in nonhazardous locations:
    - a. Indoor:
      - 1) Dry environmentally controlled area: NEMA 12.
      - 2) Noncorrosive wet or hose-down area: NEMA 4.
      - 3) Corrosive wet or hose-down area: NEMA 4X
    - b. Outdoor:
      - 1) Corrosive area: NEMA 4X.
      - 2) Noncorrosive area hose-down or spray area: NEMA 4.
      - 3) Noncorrosive area nonhose-down area NEMA 3R.
  - 2. Construct noncast-metal electrical enclosures from reinforced steel plate capable of supporting devices mounted on or within enclosure without deflection. Steel plate thickness shall conform to UL requirements.
  - 3. Enclosures shall be of adequate strength to support mounted components during shipment and installation.
  - 4. Conduit entrances: Field drilled.
  - 5. Electrical enclosures located in outdoor, wet, or hose down areas shall be provided with space heaters. Provide space heaters completely wired within enclosure. Provide following:
    - a. Space heater.
    - b. Adjustable thermostat with set point temperature indicator.
    - c. One miniature circuit breaker protective device.
    - d. Space heaters, thermostat, and protection shall not interfere with cable into or out of enclosure, or with maintenance or replacement of devices within enclosure.
    - e. Use of space heaters shall not change or discolor any painted surface.
    - f. Space heater capacity shall maintain enclosure internal temperature above dew point under specified service conditions.
    - g. Space heaters: Rate for 240 volts ac minimum, and size for operation on applied voltage of 120 volts ac.
- D. Outdoor electrical enclosures with ventilating openings:
  - 1. Louver on outdoor electrical equipment and protect in accordance with NEMA type.
  - 2. Equip openings on outdoor electrical equipment with fine mesh filters and stainless steel bug screens.

## 2.04 EQUIPMENT SAFETY GROUNDING

- A. Install exposed raceway electrically continuous. Conduit and tray shall not be considered to be only ground conductor.
- B. Furnish equipment that is part of integral shipping unit or assembly with bare copper ground conductor extending to central ground connection lug. Lug shall be suitable for field connection to local ground. Electrical equipment shall be considered any device that is energized.
- C. Single-point ground connections required for proper operation of electronic equipment shall be insulated from equipment safety ground. Such connections shall be extended, using insulated cable, to single insulated termination point suitable for field connection to appropriate ground system.
- D. Conduits containing power circuits shall have ground conductor installed inside conduit. Ground conductor shall be bonded to equipment or tray or duct ground at both ends.

- E. Provide ground bushing on each conduit containing power circuit. Connect ground bushings together inside enclosure and to enclosure ground lug or ground bus.
  - 1. Use No. 8 AWG conductor for ground bushings trade size 1-1/2" (38 mm) and smaller.
  - 2. Ground bushings larger than 1-1/2" (38 mm) shall be sized in accordance with requirements of NEC, but in no case shall bushings be smaller than No. 8 AWG.
- F. Ground conductor: Uninsulated, Class B standard, round soft drawn uncoated copper as defined in ICEA S-19-81, unless specified otherwise.
- G. Hardware: Clamps, bolts, washers, nuts, and other hardware used with grounding conductor shall be copper, copper alloy, high copper alloy, or silicon bronze.

#### 2.05 PIN AND SOCKET CONNECTORS

- A. Unless shown on Drawings, not allowed.

#### 2.06 FUSES AND FUSE BLOCKS

- A. Modular-type, Class H screw terminal fuse blocks with Bakelite frame and reinforced retaining clips. Blocks shall be similar in construction and by same manufacturer.
- B. Slow blow fuses: Bussmann Type MDL or Gould Shawmut Type GDL with ampere ratings of 1/4, 1/2, 1, or 2.
- C. Fast acting fuses: Bussmann Type NON or Gould Shawmut Type OT with ampere ratings of 1, 3, 6, 10, 15, 20, or 30.
- D. Extremely fast acting fuses: Bussmann Type KAB with ampere ratings of 1, 3, 6, 10, 15, 20, or 30.

#### 2.07 CONTROL RELAYS

- A. General service, industrial grade auxiliary relays rated 600-volt.
- B. Contacts: Reversible from N.O. to N.C. in field.
- C. Timing relays for critical service: Agastat Series 7000.

#### 2.08 CONTROL SWITCHES

- A. Multistage, rotary-type rated 120 volts ac or 125 volts dc, 3 amperes, as required.
- B. Handles: Black, fixed, modern, pistol grip type. Provide engraved black plastic escutcheon plates with targets.
- C. Provide with colored LED lamps and nameplates as required.

#### 2.09 PUSHBUTTONS

- A. Standard pushbuttons: Heavy, industrial-type rated 120 volts ac or 125 volts dc, 3 amperes, as required.
- B. Provide with colored LED lamps and nameplates as required.

## 2.10 INDICATING LIGHTS

- A. Status indicating lights: High-intensity, cluster, LED-type for panel mounting.
- B. Coordinate indicating light colors with indicated conditions as follows. Indicating lights shall be energized when condition exists and shall be de-energized when condition does not exist:
  - 1. Red: Equipment energized: such as motor running, valve open, or breaker closed.
  - 2. Green: Equipment de-energized: such as motor stopped, valve closed, or breaker open.
  - 3. Amber: Equipment abnormality: such as motor trip, breaker trip, or relay trip.
  - 4. White: Monitoring of control power or trip coil: such as lockout relay trip coil monitor or breaker trip coil monitor. Light is on during normal circuit operation and off during loss of power or loss of coil.
  - 5. Blue: Loss of control power.

## 2.11 ALARM AND TRIP CONTACTS

- A. Alarm contacts for remote annunciation: Suitable for operation at 120 volts ac and 125 volts dc. Contacts shall be rated at least 0.5-ampere make and break, minimum.
- B. Alarm contacts: Normally closed contacts that open to alarm condition.
- C. Trip contacts for remote trip: Suitable for operation at 125 volts dc and rated 5 amperes make or break, minimum.

## 2.12 WIRING DEVICES

- A. Standard convenience outlets: Premium, heavy-duty, specification-grade, duplex, 3-wire, grounding, 20-ampere, 125-volt for 120-volt circuits, and rated 250-volts for 240 or 208-volt circuits.
- B. Ground fault circuit interrupter (GFI) receptacles: Duplex, 20-ampere, and 125 volts, feed-through type.
- C. Isolated ground (IG) outlets: Duplex, 3-wire, with isolated grounding terminal, 20-ampere, and 125 volts. Outlets shall be orange in color, unless specified otherwise.

## 2.13 IDENTIFICATION AND TAGGING

- A. Provide power, control, and instrumentation cables with permanent type identification markers with typed cable numbers and from/to information at each point of termination. Cable numbers and from/to information will be provided for circuits not associated with low-voltage panelboards.
  - 1. Position cable markers to be readily visible for inspection.
  - 2. Cable numbers shall match those as shown on Drawings.
  - 3. Provide wire tags at each termination point for each conductor. Tags shall be permanent, wrap around, heat-shrinkable type with typewritten information.

## 2.14 EQUIPMENT NAMEPLATES

- A. Laminated white-over-black plastic such that face is white with black letters, with 1/8" (3 mm) engraved letters securely fastened with minimum of 2 self-tapping, stainless steel screws.
- B. Nameplates shall meet requirements of NFPA 70E

2.15 HARDWARE

- A. Provide hardware including, but not limited to, anchor bolts, nuts, washers, expansion anchors, wire nuts needed for installation.
- B. Hardware smaller than 3/4" (19 mm) shall match NEMA standard size bolt holes on electrical equipment.

**PART 3 EXECUTION**

NOT USED

END OF SECTION

- 1) Philip E. Schulz
- 2) Seth G. Weiss

## **PART 1 GENERAL**

### 1.01 SECTION INCLUDES

- A. Design, manufacture, test, deliver, assemble, and install Class I medium power transformers and accessories for liquid-immersed, self-cooled, forced-air cooled, and forced-liquid cooled, with self-cooled ratings as follows:
  - 1. High voltage windings above 110 kV BIL to below 450 kV BIL.
  - 2. Transformers base rated 50,000 kVA and lower.

### 1.02 EVALUATION AND PENALTIES

- A. Bid evaluation:
  - 1. Bids will be evaluated considering base and/or alternate bids plus additions as described herein.
  - 2. Loss evaluation:
    - a. Cost of equipment losses will be considered in Bid evaluations,
    - b. Guaranteed equipment kW losses will be evaluated at rates listed on Data Sheets.
    - c. Evaluation basis:
      - 1) No-load losses at 100% voltage.
      - 2) Load losses at maximum MVA rating.
    - d. Evaluation:
      - 1) Guaranteed equipment losses listed on Data Sheets included with Bid will be multiplied by rates listed on Data Sheets.
      - 2) Above determined values will be added to quoted equipment price.
  - 3. Transformers manufactured outside continental United States can be assessed a cost for Owner's expenses. Expenses will be added to evaluated bid price:
    - a. Additional cost of Owner and Engineer to witness test each individual unit.
    - b. At Owner's option, cost of an independent professional to expedite and monitor quality control.
- B. Penalties:
  - 1. Penalties will be assessed if actual no-load or load losses from certified shop test reports exceed guaranteed values by more than tolerances allowed by IEEE C57 standards.
  - 2. Penalty evaluation: Penalty will be computed by multiplying load and no-load kW losses stated on certified shop test reports that exceed guaranteed values provided on Data Sheets by more than tolerances allowed by IEEE C57.12.00 by \$/kW shown on Data Sheets.
  - 3. Total dollar value of above computed penalty will be assessed to Vendor.
  - 4. Losses less than those guaranteed will not be credited.

### 1.03 WITNESS TESTING ALLOWANCE

- A. Costs included in cash allowances: Include costs for Owner and Engineer to attend witness testing for testing as specified on Data Sheet.
  - 1. Travel allowance:
    - a. Travel shall be per round trip required for witness testing.
      - 1) Owner: \$2,500 per round trip.
      - 2) Engineer: \$2,500 per round trip.
      - 3) Above cost for continental United States only. Additional charges will be assigned for international flights.
  - 2. Daily per diem allowance: Expenses other than travel shall be covered by per diem allowance at the following rates:
    - a. Owner: \$500 per day.
    - b. Engineer: \$2,500 per day.
  - 3. Two per diem days shall be added for each round trip to cover expenses for travel days.
  - 4. Proposal shall provide quantities for allowances, if additional trips are needed they will be paid at the same rate at manufacturer's expense.
- B. Total trip cost will be deducted from final payment of transformer.

1.04 WORK BY OTHERS

- A. Foundations.
- B. External electrical connections of main and auxiliary conductors.

1.05 INFORMATIONAL SUBMITTALS

- A. Submit with Bid:
  - 1. Equipment proposed shall be furnished to have sufficient mechanical strength to withstand without failure all through-fault currents. Demonstrate equipment will meet this requirement by one of following methods:
    - a. Certified test data showing that equipment with core and coil identical in design and construction and identical or similar with respect to kVA capacity, kV ratings, BIL, impedance and voltage taps has been tested without failure for short-circuit strength.
    - b. History of successful experience with equipment of identical or similar ratings, design, and construction.
      - 1) List units in service with core and coils that are essentially identical in design, construction, and manufacture to equipment covered by this Specification.
      - 2) Provide information on date of installation, location, and failures if any.
    - c. Where equipment has not been built or cumulative service record is less than 20 equipment years, submit list of equipment in service that represent closest approximation to equipment covered by this Specification. Information submitted shall be:
      - 1) Representative of total experience of manufacturer, with design of equipment it proposes to furnish.
      - 2) Include dates of installation or shipping.
      - 3) Ratings of equipment.
      - 4) Failures and causes of failure, if any, that have been experienced.
  - 2. Copy of warranties.
  - 3. Guaranteed loss data as required in Data Sheets.
  - 4. Guaranteed sound analysis as required in Data Sheets.
  - 5. Location of manufacture of each transformer.
  - 6. Drawings with proposed overall estimated dimensions, weight, enclosure construction, and general layout of equipment and accessories.
  - 7. List of equipment shipped loose requiring field installation.
  - 8. Special equipment, tools and accessories required for installation or maintenance.
  - 9. Data describing specifically and in detail location of service facilities and engineers and spare parts inventories and extent of inventory in United States for equipment furnished.
  - 10. Completed preliminary Data Sheets.
  - 11. Testing schedule.
- B. Quality assurance data:
  - 1. Document submittal index.
  - 2. Test reports of all shop tests conducted in accordance with IEEE C57.12.00 prior to shipment.
  - 3. Certified shop test reports for each power transformer prior to shipment.
  - 4. Dew point of gas in transformer just prior to shipment.
  - 5. Insulating liquid test reports just prior to and immediately following transformer testing.
  - 6. Current transformer excitation and ratio correction factor curves.
  - 7. Maximum allowable impact readings that can occur during shipping in X, Y, and Z directions.
  - 8. Engineering, part procurement, manufacturing, testing and shipping schedule.
  - 9. Notice of any cancellation, delay, material change, or schedule impact upon knowledge of information.
  - 10. Status reports provided monthly.
  - 11. Storage, handling, and erection requirements.
  - 12. Notification of inspection and test schedule.

## 1.06 ACTION SUBMITTALS

- A. Product Data:
1. Fan and pump motor data sheets.
  2. Complete instruction manual and parts list for each transformer.
- B. Shop Drawings:
1. Certified Data Sheets.
  2. Drawings detailing overall dimensions, weight, lifting points, enclosure construction, and layout of transformer and accessories.
  3. Outline, general arrangement, assembly, installation, and foundation arrangement drawings. Drawings shall provide following information:
    - a. Dimensions from centerline of tank in plan and elevation views to centerline of high-voltage and low-voltage bushings, assembled transformer center of gravity, extreme edge of jacking pads, extreme edge of base in contact with foundation, distance to outside edge of radiators.
    - b. Elevation above foundation of center of gravity, maximum liquid level, minimum liquid level, top of tank, top of radiators, base and tops of surge arrestors and bushings, jacking pads, and high and low voltage live parts.
    - c. Shipping and installed weight of transformer and weight of liquid required. Quantity of liquid in gallons and liters.
    - d. Location of control cabinets and conduit entrances dimensioned from equipment centerlines and bottom of base.
    - e. Certified flange details and bolt pattern for isolated phase or nonsegregated phase bus duct if requested on Data Sheets.
  4. Drawings of transformer nameplate with complete data.
  5. Drawings of transformer nameplate, schematic and wiring diagrams showing tap arrangements, wiring of accessories, and connection and interconnection wiring diagrams.

## 1.07 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data. Provide at a minimum:
1. General description and technical data.
  2. Receiving, storage, installation, and testing instructions.
  3. Operating and maintenance procedures.
  4. Complete set of approved drawings and documents submitted for review.
  5. Certified copies of final transformer and communications test reports.
  6. Certified copies of field installation tests.
  7. Final transformer nameplate drawings including transformer test impedances.
  8. Current transformer excitation and ratio correction factor curves.

## 1.08 MAINTENANCE MATERIALS

- A. Extra materials: Provide 2-quarts of touch-up paint for each transformer, in pressurized aerosol cans.

## 1.09 QUALITY ASSURANCE

- A. Regulatory requirements:
1. Design, fabricate, and test equipment in accordance with applicable standards of ANSI, NEMA, and IEEE and in accordance with applicable requirements of OSHA, specifically:
    - a. IEEE C57.12.00 – General Requirements for Distribution, Power, and Regulating Transformers.
    - b. IEEE C57.12.10 – Requirements for Transformers 230 kV and Below, 833/958 through 8333/10417 kVA, Single phase, and 750/862 through 60,000/80,000/100,000 kVA Three Phase With and Without Load Tap Changers.
    - c. IEEE C57.12.80 –Standard Terminology for Power and Distribution Transformers.
    - d. IEEE C57.12.90 – Test code for Distribution, Power, and Regulating Transformers and Guide for Short Circuit Testing Distribution and Power Transformers.
    - e. IEEE C57.98 –Guide for Transformer Impulse Tests.

- f. IEEE C57.116 –Guide for Transformers Directly Connected to Generators.
- g. IEEE C57.131 – IEEE Standard Requirements for Load Tap Changers
- h. NEMA TR 1 – Transformers, Regulators, and Reactors.

B. Perform routine production and required tests on equipment prior to shipment, in accordance with IEEE C57.12.00 and as noted on Data Sheets.

#### 1.10 DELIVERY, STORAGE, AND HANDLING

- A. Ship transformer assembly as complete as transportation limitations permit to job site. Shipping to nearest rail unloading facility not acceptable.
- B. If nitrogen tanks are furnished, tanks shall become property of Owner.
- C. Insulating liquid shipped separately shall be in nonreturnable drums or by tanker truck. Coordinate liquid shipment and storage with site personnel.
- D. Instruments and gages shall be covered and protected from damage, either physical or climate.
- E. Provide with each transformer a 3-way temporary impact recorder to measure magnitude and direction of longitudinal (Y), lateral (X) and vertical (Z) impacts that occur during shipment. Stipulate in shipping order to carrier that only Owner may remove an impact recorder.
- F. Upon delivery, notify Owner for removal of impact recorders.
  - 1. If a recorder indicates impacts equal to or greater than those listed by Agreement in any of three directions specified, Contractor will be notified.
  - 2. Upon notification Contractor shall inspect and test transformer.
- G. Determine if dew point of gas in tank is acceptable just prior to shipment, record data, and submit for review.

#### 1.11 SERVICE CONDITIONS

- A. Transformer shall be capable of operating at rated kVA under usual operating conditions as defined in IEEE C57.12.00 including ambient temperatures, cooling medium temperatures, frequency, voltage, altitude, and load current.

#### 1.12 WARRANTY

- A. Transformer shall be provided with manufacturer's standard, 1-year warranty from date of delivery.
- B. Submit separate prices for extending transformer warranty to 2 and 5 years, respectively.

### **PART 2 PRODUCTS**

#### 2.01 SYSTEM DESCRIPTION

- A. Transformer shall be capable of withstanding without injury mechanical and thermal stresses resulting from short circuit currents as outlined in IEEE C57.12.00.
- B. When indicated on Data Sheets for direct connection to generator (indicated as unit auxiliary transformer or as generator step-up transformer), transformer shall be capable of withstanding, without injury, mechanical and thermal stresses caused by through faults on external terminals of any winding, up to 125% of its rated voltage in accordance with IEEE C57.116.
  - 1. Thermal and time duration shall be as stated in IEEE C57.12.00.
  - 2. Transformer shall be capable of operating 10% above rated secondary voltage at no-load, and 5% at full load.

- C. Provide appropriate hole spacing and hole quantities at termination location on bushings as required for connections to both high-voltage and low-voltage bushings, as indicated on Data Sheets
- D. Provide auxiliary equipment and services as indicated on Data Sheets.

## 2.02 DESIGN REQUIREMENTS

- A. Design equipment enclosure in accordance with seismic requirements as listed in most recent local building code and Data Sheets.
- B. Audible sound levels shall not exceed values as indicated on Data Sheets when measured in factory in accordance with NEMA TR 1 test code.
- C. If Load Tap Changer is specified, transformer shall be capable of delivering rated kilovolt amperes at rated low voltage position and on all positions above rated low voltage.

## 2.03 COOLING CLASS

- A. Cooling class designation shall be as indicated on Data Sheets and shall be consistent with IEEE C57.12.00.
  - 1. First letter designates internal cooling medium in contact with windings.
    - a. O – Mineral oil or synthetic liquid with fire point  $\leq 300^{\circ}\text{C}$ .
    - b. K – Insulating liquid with fire point  $> 300^{\circ}\text{C}$ .
    - c. L – Insulating liquid with no measurable fire point.
  - 2. Second letter designates circulation method for internal cooling medium.
    - a. N – Natural convection flow.
    - b. F – Forced circulation through cooling equipment (i.e., coolant pumps), natural convection around windings.
    - c. D – Forced circulation through cooling equipment, directed into at least main windings.
  - 3. Third letter designates external cooling medium.
    - a. A – Air.
    - b. W – Water.
  - 4. Fourth letter designates circulation method for external cooling medium.
    - a. N – Natural convection.
    - b. F – Forced circulation (i.e., fans for air cooling, pumps for water cooling).

## 2.04 MECHANICAL CONSTRUCTION

- A. Fabricate tanks, bases, radiators, covers, junction boxes, and other attached compartments from materials of sufficient strength to withstand normal service stresses without distortion or damage.
- B. Base shall be suitable for rolling or skidding in a direction parallel with either centerline.
- C. Design tanks and enclosures:
  - 1. Suitable for vacuum filling and vacuum drying in field.
  - 2. Maximum tank pressure shall comply with IEEE C57.12.00.
- D. Transformer tank top shall be domed to prevent water accumulation, and have a skid-resistant surface.
- E. Main tank cover, joints in transformer tanks, non-removable flanges, and bases shall be made gastight and liquidtight by welding.
- F. Recessed gaskets shall be used for flange connections on manhole, bushings, and other bolted connections.
- G. Equip transformer with provisions for jacking in accordance with IEEE C57.12.10. Provide lifting hooks on tank, and lifting eyes on cover.

- H. Unless alternate method is used to prevent corrosion of exterior of bottom of transformer tank, transformer tank design shall be such that ventilation is provided between concrete supporting slab and bottom of transformer tank.
- I. Only supporting steel beneath bottom of transformer tank may touch concrete slab. Design of steel supporting transformer tank bottom shall be such that bottom is accessible for inspection after installation.
- J. Provide recommendation for attachment of transformer to foundation with design drawings. Method of attachment will take into account seismic requirements of job site as indicated on Data Sheets.
- K. Gages and indicators mounted more than 5' (1.5 m) above bottom of base supports shall be sized and angled such that they are easily read from ground line elevation.
- L. Wiring:
  - 1. Wiring, thermocouple wiring, and connections shall be separately supported and protected to prevent damage during shipment or after final installation.
  - 2. Wiring shall be neatly bundled, terminated and marked in accordance with connection diagrams.

## 2.05 GROUNDING

- A. Two copper-faced steel grounding pads, each not less than 2" x 3-1/2" (50 mm x 88 mm) with 2 holes vertically spaced on 1-3/4" (44 mm) centers drilled and tapped for 1/2" (13 mm), 13 UNC thread. Minimum threaded depth of holes: 1/2" (13 mm).
- B. Protect threads by use of noncorrosive material.
- C. Weld ground pads on tank wall at diagonally opposite sides of transformer, located at, or near base.
- D. Provide ground conductors from equipment mounted on transformer that require grounding, to ground pads. Use No. 4/0 AWG, minimum
- E. Provide separate ground strap or conductor from neutral bushing to ground pad for transformers with solidly grounded neutrals. Ground strap to be sized for maximum ground fault with maximum duration as indicated on Data Sheet. For transformers with impedance grounded neutral, neutral ground strap shall be insulated from transformer and metallic parts for line-to-line voltages.

## 2.06 CORE AND COILS

- A. Brace to withstand short-circuit forces without damage or displacement of coil or core in accordance with IEEE C57.12.00.
  - 1. 3-phase transformers rated less than or equal to 5.0 MVA: Limited only by transformer impedance – Category II.
  - 2. 3-phase transformers rated greater than 5.0 MVA: Limited by transformer and system impedance in accordance with Category III and IV.
- B. Core and coils shall withstand forces normally expected from shipping, moving and handling without use of special internal shipping braces.
- C. Provide suitable cooling liquid passages to limit hot spot temperature rise above average winding temperature rise at rated load.
- D. Complete core and coil assembly shall be readily removable from tank for repairs.
- E. Insulate coils from core and each other with sufficient insulation to withstand standard impulse and low frequency test for transformers of specified voltage class.

- F. Core ground connection shall be accessible at manhole without removing liquid from transformer tank or climbing into tank.
- G. Transformer cores: Circular in cross section for transformers 10 MVA and larger.
- H. Windings: Circular in cross-section and made up of copper conductor.
- I. Tertiary windings (if specified on Data Sheets):
  1. kVA rating as required to meet short circuit withstand, but not less than 35% of transformer rating.
  2. Loading conditions: Transformer shall be suitable for operation for loading conditions specified on Data Sheets.
  3. Impedance: Limit fault magnitude to conditions specified on data sheets with in-feed from both high- and low-voltage terminals simultaneously.
- J. When dual voltage high voltage windings are specified the high voltage winding reconnection shall be made via a manual operated reconnection switch accessible from outside the transformer tank with position indicator and provisions for padlocking on transformer case minimum 48" (1.2 m) above bottom of baseplate support.

## 2.07 TOP LIQUID TEMPERATURE INDICATOR

- A. Provide dial-type, liquid temperature indicator relay for visible indication of top liquid temperature.
- B. Indicator:
  1. Gage: Not less than 6" (150 mm) in diameter; clearly readable from ground elevation.
  2. Temperature controller:
    - a. Microprocessor temperature monitor and controller.
    - b. 3 temperature monitoring probes.
    - c. Outputs for SCADA monitoring.
    - d. RS232 with DNP3.0.
    - e. Software:
      - 1) Complete set of software to operate, communicate, and analyze data.
      - 2) Corporate license to software for Owner's and Engineer's use.
    - f. Communications wired to auxiliary control cabinet.
    - g. Manufacturer: Advance Power Technologies TTC 1000, or equal.
- C. Equip indicator with separate alarm contact and trip contact and manually resettable maximum temperature indicating hand.
- D. Mount so sensing element can be removed without loss of liquid and not interfere with tanking and un-tanking transformer core and coils.

## 2.08 COOLING EQUIPMENT AND CONTROLS

- A. Furnish integrally mounted equipment to provide required cooling capacity to maintain specified transformer rating.
  1. Radiators: Furnish radiator valves when detachable radiators are required by design of unit.
  2. Position to not obstruct access to manholes, hand holes, or other inspection/maintenance locations.
  3. Design to inhibit collection or retention of water or debris.
- B. Temperature control shall be provided by electronic winding temperature indicator arranged, and designed to automatically operate transformer cooling equipment in steps proportionate to transformer load and temperature.

- C. Winding temperature indication:
  - 1. At a minimum, electronic hot spot winding temperature indicator shall have alarm contacts and 4 levels of operation.
  - 2. Contacts shall be provided for customer remote indication for high temperature and high-high temperature.
  - 3. Provide current transformer required for winding temperature indicators.
  - 4. Hot spot thermal relay shall be provided with test switch so test can be circulated through relay with transformer in service and current transformer shorted out.
- D. Arrange cooling equipment controls so no single fault in control circuitry will cause loss of more than one half of cooling system capability.
- E. Arrange transformer cooling equipment controls so single remote contact will shut down all fans, regardless of mode of operation selected (manual or auto).
- F. Arrange ODAF cooling controls as follows:
  - 1. "Auto-Manual" selector switch and local "On-Off" switches for each fan bank and each pump bank.
  - 2. When in "Auto" state, cooling shall be initiated from integral winding hot spot detection.
  - 3. Provide 2 external control override when control switch is in "Auto." One external connection shall start cooling system regardless of hot spot temperature; second shall stop cooling systems regardless of hot spot detection.
- G. Provide cooling fan and pump motor contactor status for remote monitoring of cooling system.

## 2.09 AUXILIARY POWER AND CONTROL CABINET

- A. Enclose control equipment in weatherproof cabinet with NEMA rating as indicated on Data Sheet. Permanently attach to transformer.
- B. Location:
  - 1. Locate cabinet at height above bottom of base support such that it is suitable for operation and inspection by person standing at level of bottom of base support.
  - 2. Top of cabinet height shall be no more than 6'-7" (2 m) measured from bottom of base support elevation.
- C. Extend auxiliary power and control circuits that require an external connection to a common weatherproof control cabinet wired to terminal blocks.
- D. Wiring:
  - 1. Provide wiring, raceway, and terminal blocks in accordance with Section 26 05 00.
  - 2. Equip terminal blocks with washer head binding screws, covers, and white terminal identification marking strips General Electric Type EB-25, Marathon Type 1600, or equal. Screw shall accept standard holding type screw drivers only.
  - 3. Minimum No.12 AWG for control and minimum No.10 for current transformer wiring. Provide ring-tongue terminals on each end of control wiring.
  - 4. Use either molded-case or DIN-rail mounted miniature circuit breakers to protect individual branch circuits integral to control cabinet for external circuits entering cabinet.
- E. Auxiliary power source:
  - 1. Others will provide single or dual source of ac power and single source of dc power to control cabinet for fans, space heaters, auxiliaries, and control as indicated on Data Sheet.
  - 2. If second source of power for fans is specified on Data Sheets, use transfer switch to automatically switch between sources. Transfer switch shall be break-before-make and integral to control cabinet.
  - 3. If transformer equipment is furnished that operates on voltages other than that provided, equipment required to transform voltage of auxiliary power shall be furnished with transformer

and shall be integral to control cabinet. Locate transformer to prevent damage or field personnel usage as step.

- F. Provide control cabinet with space heaters capable of maintaining cabinet internal temperature above dew point.
  - 1. Heaters shall be spaced away, and be thermally insulated from devices and painted surfaces.
  - 2. Controlled by adjustable thermostat, factory set to close on falling temperature at 80°F (On) and open on rising temperature at 95°F (Off).
- G. Interior lighting:
  - 1. Furnish interior cabinet LED light fixture that illuminates automatically when door is opened.
  - 2. Overcurrent protection device within cabinet shall protect fixture.
  - 3. Confirm cabinet lamps are readily available within Owner's service area.
- H. Furnish duplex 120-volt, 20-ampere, general use GFI receptacle within each enclosure to provide power for maintenance personnel. Overcurrent protection device within cabinet shall protect receptacle.
- I. Paint inside of cabinet white.
- J. Fan and/or pump motor starters, control power transformers, and protective devices as required for a complete and operational transformer shall be furnished as part of control cabinet.
- K. Provide undervoltage relays to actuate alarm on loss of any external auxiliary power source with contacts wired to terminal blocks for external use.
- L. Communications:
  - 1. Provide central communications panel for communication connection to transformer mounted and/or provided equipment.
  - 2. Panel shall be clearly labeled including communications ports of any type.
  - 3. Communications shall be fully tested through panel as part of testing procedure and detailed reports provided.
- M. Provide operating and maintenance manual holding slot integral to control cabinet.
- N. Provide red shipping jumpers on current transformer terminals. Use of shorting-type terminal blocks only not acceptable.
- O. Locate transformer nameplate on door of transformer control cabinet.

## 2.10 CURRENT TRANSFORMER CIRCUITS

- A. Extend current transformer leads into transformer control cabinet. Terminate current transformer leads on shorting-type General Electric EB-27 terminal blocks mounted in transformer control cabinet.
- B. Ratios of multi-ratio current transformers shall be wired to transformer control cabinet.
- C. Short CT circuits at full ratio for shipment.

## 2.11 INSULATING LIQUID

- A. Ship transformer filled whenever possible.
- B. Furnish sufficient quantity of insulating liquid for complete vacuum filling to manufacturer's recommended level.
- C. Design transformer with sufficient bracing and strength to permit full vacuum filling with insulating liquid.

- D. Insulating liquid shall meet requirements as defined by ANSI/ASTM D3487 or ANSE/ASTM D6871 and following:
  - 1. Chemically stable.
  - 2. Free from acidity or other corrosive ingredients.
  - 3. Possess high dielectric strength.
  - 4. Contain less than 15 ppm water when tested in accordance with procedures of ASTM D1533 (Karl Fischer method).
  - 5. Test at least 30 kV upon receipt at final destination when tested in accordance with procedures of ASTM D877.
  - 6. If dielectric test strength of any liquid received in field, whether shipped separately or in transformer, tests less than 30 kV, provide labor, supervision, material, and equipment required to replace liquid in its entirety until test meets these specifications.
- E. Insulating liquid sampling and test procedures at factory shall conform to requirements of ASTM D117 and ASTM D923for insulating liquid.
- F. Insulating liquid shall be inhibited with 0.3% by weight of DBPC (2, 6-Ditertiary-Butyl Para-Cresol). Transformer nameplate shall state that liquid is inhibited.
- G. Certify and warrant that equipment furnished insulating liquid without PCBs. Replace equipment at no cost should testing indicate that equipment does not meet this condition. Affix sign to transformer near drain valves which states that liquid used in equipment. Wording: "CONTAINS NO PCBs."

## 2.12 INSULATING LIQUID PRESERVATION SYSTEM

- A. Provide transformer with manufacturer's standard liquid conservation system unless noted otherwise on Data Sheets. Indicate type of proposed liquid conservation system on Data Sheets.
- B. Conservator liquid preservation system:
  - 1. If indicated on Data Sheets or if proposed by manufacturer, furnish conservator liquid preservation system as specified on Data Sheets as defined in accordance with IEEE C57.12.80.
  - 2. Type: Automatically maintained system that seals liquid from atmosphere. Provide required tank, piping, liquid level gage, upper filter press connection, and sampler.
  - 3. Design conservator system to withstand full vacuum. Provision shall be made for filling of main tank and conservator while under vacuum.
  - 4. System shall maintain constant atmospheric pressure on liquid. Provide sufficient capacity in conservator tank to prevent low level alarms for complete operating temperature range of transformer for ambient conditions listed on Data Sheets.
  - 5. Volume of liquid shall be adjusted such that no liquid shall be released until after top liquid temperature exceeds 120°C.
  - 6. Conservator system shall include, but not be limited to:
    - a. Conservator shut off valve.
    - b. Main tank shut off valve.
    - c. Drain valve.
    - d. Dehydrating breather with liquid seal used with air cell breather.
    - e. Pressure/vacuum bleeder with gage. Set to operate at lowest level consistent with reliable operation mounted on conservator air space.
    - f. Dual pressure/vacuum switch to operate prior to bleeder operation mounted on conservator air space.
    - g. Vent valves with easy open/close feature.
    - h. Liquid level gage with high and low-level alarm contacts.
    - i. Buchholz relay 2-float version of flow-through type installed between tank and conservator system. Selected and installed in accordance with Buchholz requirements. Relay contacts shall be supplied with Form "C" contacts for each of functions and shall be wired to control cabinet.
    - j. Interconnecting piping: Metallic.

- C. Inert gas system:
  - 1. Where specified on Data Sheets, provide automatically maintained system to provide dry nitrogen gas atmosphere above liquid. System shall include electronic monitoring system with alarm contacts arranged for remote indication of low, low/low, and high gas pressure.
  - 2. Provide valves to permit purging gas space and testing tank seal by admitting dry nitrogen under pressure.
  - 3. Nitrogen gas:
    - a. Bottled in 200 cu ft cylinders with connection No. 580 of ANSI/CGA-V-1.
    - b. Gas shall be in accordance with ASTM D1933, Type III.
    - c. Filling pressure: 2,200 ft-lb/sq in at 21.1°C.
    - d. Provide gas for initial charge on transformer and one full extra bottle for future use.
  - 4. Nitrogen control equipment, including adequate space for nitrogen bottles, shall be protected by easily accessible, weatherproof enclosure mounted on transformer tank.

#### 2.13 CURRENT TRANSFORMERS (CT)

- A. Provide bushing type CTs with fully distributed windings for relaying or metering service in quantities, ratios, and ratings as indicated on Data Sheets or on one-line diagrams.
- B. Extend current transformer leads into transformer control cabinet and terminate on shorting-type terminal blocks.

#### 2.14 BUSHINGS

- A. Suitable for service conditions specified herein.
- B. Bushing insulation class: Not less than that of winding to which connected.
- C. Bushing electrical characteristics and tests: IEEE C57.12.00 and IEEE C57.19.00.
- D. Bushing dimensions: IEEE C57.19.01 and NEMA TR1.
- E. Bushing color: Manufacturer's standard.
- F. Terminals: As indicated on Data Sheets.
- G. 110 kV BIL and above: Oil-filled, IEEE C57.19.00 and IEEE C57.19.01.
- H. Above 110 kV BIL: Provide with facilities for power factor testing.
- I. Minimum clearances: NEMA TR 1-1980, Table TR 1-0.06.

#### 2.15 SURGE ARRESTERS

- A. When indicated on Data Sheets, provide metal-oxide station class arresters with voltage ratings as specified on Data Sheets. General Electric "Tranquell," Ohio Brass "DynaVar," or ABB "ExlimQ."
- B. Mount near bushings such that they do not interfere with connections with minimum clearances specified in NEMA TR 1 for bushings are achieved with clearances approaching NEMA SG6 where practicable.
- C. Provide with full-capacity, copper connections, maximum 750 kcmil conductor size, between arrester and transformer bushing terminals to allow connection to arresters.
- D. Provide with ground connections.
- E. Connections between bushings and arresters shall contain provisions for expansion and contraction.

## 2.16 TAP CHANGER

- A. Provide tap voltages as indicated on Data Sheets. Each tap position shall be fully rated and shall not limit kVA rating of transformer.
- B. De-energized tap changer (NLTC):
  1. Provide operator for de-energized tap changer with extension to allow manual operation of tap changer at base elevation.
  2. Mount manual operating mechanism with tap position indicator and provisions for padlocking on transformer case minimum 48" (1.2 m) above bottom of baseplate support.
  3. Locate mechanism inside tank above core and coils if possible. If this location is impractical, mechanism shall be accessible through ports.
  4. Each tap position shall be fully rated.
- C. Load tap changer (LTC) when specified on Data Sheets:
  1. Operating mechanism with motor drive, local position indicator, operation counter, and raise/lower switches for manual operation.
  2. Equipment for LTC shall be mounted in a weatherproof compartment adjacent to tap changer compartment.
  3. Meet requirements of IEEE C57.131
  4. High-speed resistance or vacuum reactance.
  5. Design for minimum of 500,000 operations before contact or vacuum bottle replacement.
  6. Preventative transformer or series transformer required shall be power class, copper wound, and of a round core/coil design.
  7. Mount tap changer in separate oil-filled compartment, capable of withstanding full vacuum in main tank without bypass piping.
    - a. LTC compartment to be filled with mineral oil.
  8. LTCs intended for automatic operation shall have at a minimum:
    - a. Top filling plug.
    - b. Drain valve with sampling device.
    - c. Cover mounted pressure relief device.
    - d. Pressure control switch with alarm contacts.
    - e. Liquid level gage with alarm contacts.
    - f. Local position indicator.
    - g. Operations counter.
    - h. Space for mounting equipment for circulating current method for parallel operation.
    - i. Selsyn-type transmitter for position indication.
    - j. Raise and lower switches for manual control.
    - k. Current transformer for input to LDC shall be provided separate of other required transformer CTs.
    - l. Controller:
      - 1) Digital control package Beckwith M2001D with line-drop compensator (LDC) with resistance and reactance adjustments and one current transformer.
      - 2) If specified on Data Sheet:
        - a) Include external communications device
        - b) Transformer paralleling communications and devices.
    - m. Auto-manual selector switch.
    - n. Testing terminals.
    - o. Static voltage regulating relay.
    - p. Control and time delay relays.
    - q. Reactance reversing switch.
    - r. Control compartment mounted to transformer with terminal blocks, space heaters, interior lighting, and convenience receptacle.
    - s. Continuous oil filtering system.
  9. LTCs intended for remote operation shall have at a minimum:
    - a. Remote-Local selector switch.
    - b. Remote tap position indicator for mounting on remote control cabinet.
  10. Design drive mechanism such that LTC can be manually operated, while transformer is operating under load, safely with no risk to transformer or operator.

11. If mechanism stalls in "Off-Tap" position, whether in automatic or manual operation, LTC shall be capable of maintaining full load indefinitely and an alarm contact shall be provided for remote monitoring.
12. Manufacturer: Reinhausen RMV-II or ABB UZF.

## 2.17 ACCESSORIES

- A. Provide standard accessories in accordance with IEEE C57.12.10.
- B. Provide following devices with at least one set of single-pole, double-throw (SPDT) alarm contacts for each:
  1. Magnetic liquid level indicator.
  2. Pressure relief device piped such that releases occur away from bushings, control cabinets etc. Include dry Form C contact for remote indication. Wire to control cabinet.
  3. Top liquid temperature indicator.
  4. Loss of control power.
  5. Loss of auxiliary ac power alarm devices.
- C. Alarm contacts: Indicator contacts, switches, and relays used as alarm contacts shall be ungrounded and suitable for interrupting 0.02 ampere dc inductive, 0.2 ampere dc noninductive, or 2.5 amperes ac noninductive load at 250 volts maximum.
- D. Liquid drain and sampling devices.
- E. Upper and lower filter press connections.
- F. Lifting, moving and jacking facilities.
- G. Tilt transformer gages for ease of reading from ground. Mount within 5' (1.5 m) elevation of transformer base.
- H. Provide Buchholz fault pressure relay system, sensitive to rate of pressure increase including single-pole, single-throw (SPST) primary element controlling auxiliary seal-in relay and reset switch arranged and connected to provide manually resettable lockout function on operation of primary element.
  1. Design auxiliary relay for satisfactory operation on specified dc system. Provide electrically separate contacts for use with remote equipment. Mount inside main control cabinet.
  2. Wire rate of pressure rise relay equipment to terminal points in main control cabinet. Provide complete provisions for testing.
  3. Fault pressure relay: "Quailitrol."

## 2.18 IDENTIFICATION AND TAGGING

- A. Provide permanent nameplates to identify protective relays, meters, instruments, selector switches, indicating lights, terminal blocks, and other devices within various compartments.
- B. Nameplates shall have black lettering on white background. Fasten in place using Type 316 stainless steel, self-tapping screws. Nameplates shall be heat- and UV-resistant.
- C. Terminal blocks shall be clearly marked for wiring using permanent printed markers. Each internal interconnecting wire shall be identified at both ends with sleeve type wire markers with from/to information.
- D. Tag equipment with item number as shown on Data Sheets.

2.19 PAINTS AND FINISHES

- A. Type: Polyurethane or epoxy, durable.
- B. Tank paint: Manufacturer's standard ANSI gray.
- C. Radiators: Manufacturer's standard ANSI gray or bare galvanized steel.

2.20 SOURCE QUALITY CONTROL

- A. Transformer no-load and load-loss test results shall be certified by a licensed professional Engineer.
- B. Perform routine production and required tests on equipment prior to shipment, in accordance with IEEE C57.12.00 and as noted on Data Sheets.
- C. Perform routine accuracy tests on each metering accuracy current transformer in accordance with IEEE C57.13.
- D. Witness testing. Notification in writing shall be provided not less than 30 days prior to scheduled starting date of factory test. Provide notification of performance date for each test not less than 10 days prior to date of test to allow witness testing if so desired.
- E. Unusual events or damage occurring during fabrication of transformer and of tests, which do not meet specified standard values shall be reported. Inspection of such damages or test failures may be witnessed. Corrective measures to overcome such damage or failure shall be subject to acceptance by Engineer.
- F. Temperature test: Not required on individual units if tests exist for thermal duplicate unit of previous manufacture. Copy of test on file shall be furnished.
- G. Special tests:
  - 1. Impulse tests:
    - a. Perform in accordance with IEEE Standard C57.12.90 using neutral current method of fault detection.
    - b. Oscillographic records of test shall be included in test reports.
  - 2. Partial discharge test:
    - a. Test for partial discharge in accordance with partial discharge procedures specified in "Partial Discharge Measurement" and IEEE C57.113.
    - b. Test voltage shall be determined in accordance with ANSI/IEEE C57.12.00.
    - c. Acceptable measured partial discharge above background:
      - 1) RIV level:
        - a) Lower than 100 microvolts with increase in RIV not exceeding 30 microvolts during 1-hour test.
        - b) Shall not exceed 250 microvolts at any time during test.
      - 2) Apparent charge measurement level below 500 picocoulombs.
    - d. Perform partial discharge test after other dielectric tests are completed.
    - e. Test report:
      - 1) Provide test results in both microvolts and picocoulombs
      - 2) Curve of data obtained in test shall be included in test reports.
  - 3. Megger tests: Perform in accordance with following procedure. Resistance measurements shall be corrected to 20°C.
    - a. Perform with transformer filled with liquid and with appropriate bushings interconnected to measure resistance from high to ground, low to ground, and from high to low. Perform using applied potential of 2,500 volts.
    - b. Perform between core and ground using applied potential of 500 volts.
  - 4. Gas-in-liquid: Before testing begins and after tests specified are completed, dissolved gas-in-liquid analysis shall be made of main tank liquid.

5. Audible sound level: Not to exceed values given in NEMA TR 1 when measured in factory in accordance with NEMA TR 1 test code.
6. Communications test: Perform communications testing on devices with external communications capability and provide test report to document satisfactory operations. Tests shall include, but not be limited to:
  - a. Original device manufacturer installation and operational tests.
  - b. Signal levels and communications panel.
  - c. Demonstration of equipment operation during Owner witness tests.
  - d. Submit test report to document satisfactory operations.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. Install in accordance with manufacturer's recommended procedures in presence of manufacturer's service representative.
- B. Move transformer to permanent location. Use cribbing and planking as required avoiding damage to underground piping or ducts in vicinity of foundation.
- C. Do not start assembly of transformer (except unloading and moving) until manufacturer's service representative is on job site.
- D. Assemble, fill with liquid, test, and refilter liquid if necessary as specified; connect and test. Provide vacuum pumping equipment required for filling transformer.
- E. Install accessories as directed by service representative.
- F. Install insulating liquid under vacuum and through a filter. Provide vacuum pumping.
- G. Provide and maintain power to heaters in transformer control cabinets.
- H. Provide documented field tests in accordance with manufacturer's recommendations.
- I. Cooperate with Owner test team for checkout and commissioning of communications.

#### **3.02 PLACEMENT OF INSULATING LIQUID**

- A. Receive and place liquid in liquid-filled equipment.
- B. Placement:
  1. Place liquid in equipment through filter in complete accordance with manufacturer's recommendations and these specifications. Vacuum filling is required for power transformers.
  2. Liquid removed to facilitate moving or assembly of equipment shall be replaced in same manner as liquid in new equipment.
  3. Use metal hose or liquid proof synthetic hose for liquid placement.
  4. When work is performed inside equipment tank, use extreme care to prevent dropping tools or other loose objects within tanks.
  5. Open work on equipment shall be done in clear, still weather or under shelter.
- C. Testing:
  1. Test liquid before and after placement or replacement of liquid.
  2. IEEE C57.106 and ASTM D877 or ASTM D1816, and ASTM D923 under observation of manufacturer's service representative.
  3. Provide necessary testing facilities.

D. Filtering:

1. When directed by Engineer or Owner, filter liquid by recirculating through filter as required, to bring to insulation level recommended by manufacturer.
2. Filtering of liquid during original placement or replacement shall be considered part of equipment installation.
3. Refiltering of liquid, which has become contaminated due to Contractor's failure to conform to manufacturer's recommendations and these specifications for placement of liquid, or due to failure to properly protect liquid from contamination when exposed to outside air, shall be provided by Contractor at no additional cost to Owner.
4. Provide necessary filtering equipment.

E. Vacuum filling:

1. Fill in accordance with manufacturer's recommendations. General procedure is as specified below.
2. Following items shall be as recommended by manufacturer:
  - a. Maximum exposure time of core and coils to atmosphere.
  - b. Minimum vacuum pressure before and during liquid filling operations.
  - c. Length of time vacuum is to be maintained before liquid filling.
  - d. Temperature of core and coils prior to liquid filling.
  - e. Temperature of liquid when filling.
  - f. Moisture and air content of liquid.
  - g. Vacuum pressure to be maintained after completion of liquid placement.
  - h. Length of time vacuum is to be maintained after completion of liquid placement, prior to being released with nitrogen.
  - i. Time duration after completion of work prior to energizing transformer.
3. Using a vacuum pump, produce a vacuum in transformer tank, maintain minimum vacuum pressure as specified by manufacturer; maintain vacuum for length of time as specified by manufacturer.
4. Fill transformer with liquid to level above core and coils, maintaining vacuum during filling process. Break vacuum and open transformer to atmosphere; install bushings.
5. If bushings cannot be installed immediately after vacuum is broken, fill transformer with dry nitrogen.
6. After parts have been installed, re-establish vacuum and maintain vacuum while adding liquid to transformer to obtain proper level. Furnish high-capacity vacuum pump, heating equipment and piping hoses, connections, and accessories required to comply with manufacturer's recommendations.

3.03 PAINTING

- A. Apply 3-coat paint system over near white, grit-blasted metal, 4 to 6 mil minimum.
- B. Furnish Material Safety Data Sheet with shipping documents.

3.04 MANUFACTURER'S FIELD SERVICES

- A. Provide services of manufacturer's service representative(s) to supervise and/or check installation.
- B. Provide labor required to assist service representative(s) in checking and testing equipment.

<b>DATA SHEETS</b>		Equipment Name: Tag No.:	
<b>3-PHASE, 2-WINDING TRANSFORMER</b>			
DESCRIPTION	UNITS	SPEC DATA	VENDOR DATA
Manufacturer	-	By Manufacturer	
Catalog/Serial No.	-	By Manufacturer	
<b>SITE CONDITIONS</b>			
24 Hr. Avg. Ambient Design Temperature	°C	30	
Maximum Ambient Temperature	°C	40	
Minimum Ambient Temperature	°C	-30	
Site Elevation Above Sea Level	ft	Less than 3,300 ft	
<b>Seismic Requirements</b>			
Site Class			
S <sub>DS</sub> – Design Spectral Ground Acceleration at Short Periods (0.2 Seconds)			
I <sub>p</sub> – Component Importance Factor			
R <sub>p</sub> – Structure Response Modification Factor			
a <sub>p</sub> – Component Amplification Factor			
Specific local Building Code and specific sections on seismic requirements used in equipment design	---	By Manufacturer	
<b>Symmetrical short circuit current</b>			
Limited Only by transformer impedance (ANSI standard)	Y/N	Y	
Minimum system short circuit current and X <sub>0</sub> /X <sub>1</sub>	kA/#.#	NONE	
<b>CHARACTERISTICS</b>			
Operating Frequency	Hz	60	
Design Temperature Rise	°C	55	
Maximum Temperature Rise	°C	65	
Cooling Class	-	KNAN/KNAF/KNAF	
Capacity at Design Temp Rise	MVA	12/16/20	
Capacity at Maximum Temp Rise	MVA	13.4/17.9/22.4	
Impedance (Z%/ %Tolerance)	Z%/+-x	7.5%/+-7.5%	
HV to LV impedance at nominal voltage on Base Rating	Z%/+-x	7.5%/+-7.5%	
HV to Tertiary at nominal voltage on Base Rating	%	NONE	
LV to Tertiary at nominal voltage on Base Rating	%	NONE	
Transformer X/R Ratio	-	By Manufacturer	
Core and Coil Construction Type	-	Circular	
Type of Material Used in Coils	-	Cu	
<b>SYSTEM CONFIGURATION</b>			
Utilized as a Unit Auxiliary Transformer	Y/N	N	
Utilized as a Generator Step-Up Transformer	Y/N	N	
Utilized as a Substation Transformer	Y/N	Y	
Utilized as a Station Service Transformer	Y/N	N	
<b>WINDINGS</b>			
<b>High Voltage:</b>			
Nominal Rated Voltage	kV	34.5	
Basic Impulse Level	kV BIL	200	
Connection	D or Y	D	
<b>Low Voltage:</b>			
Nominal Rated Voltage	kV	12.47	
Basic Impulse Level	kV BIL	110	

<b>DATA SHEETS</b> <b>3-PHASE, 2-WINDING TRANSFORMER</b>		Equipment Name: Tag No.:	
DESCRIPTION	UNITS	SPEC DATA	VENDOR DATA
Connection	D or Y	Y	
Displacement Between HV and LV Windings	deg	30° (ANSI std)	
Tertiary:		NONE	
Nominal Rated Voltage	kV	N/A	
Capacity (MVA)	Xx/xx/xx	N/A	
External Connection	Y/N	N/A	
Basic Impulse Level (External connection)	kV	N/A	
Connection	----	N/A	
Neutral:			
Basic Impulse Level	kV BIL	110	
Connection (Un-Grd, Solid, H-Res, L-Res)	-	Solid	
Neutral Insulation (Uniform, Graded)	-	Graded	
<b>BUSHINGS</b>			
High Voltage:			
Manufacturer	-	By Manufacturer	
Type	-	Porcelain	
Location	-	Cover	
Segment	-	3	
HV bushing BIL	kV	200	
Minimum creepage distance	In	35	
Low Voltage:			
Manufacturer	-	By Manufacturer	
Type	-	Porcelain	
Location	-	Side	
Segment	-	1	
LV bushing BIL	kV	110	
Minimum creepage distance	In	11	
Tertiary Voltage:		NONE	
Manufacturer	-	N/A	
Type	-	N/A	
Location	-	N/A	
Segment	-	N/A	
Tertiary bushing BIL	kV	N/A	
Minimum creepage distance	In	N/A	
Manufacturer	-	N/A	
Type	-	N/A	
Location	-	N/A	
Segment	-	N/A	
Neutral bushing BIL	kV	110	
Minimum creepage distance	In	11	
Location		Same as LV	
<b>CURRENT TRANSFORMERS</b>			
High Voltage (Bushing Current Transformers):			
Quantity on Each Bushing	Qty	2	
Ratio of Each CT	Pri/Sec	600:5	
Multi-Ratio	Y/N	Y	

<b>DATA SHEETS</b>		Equipment Name: Tag No.:	
<b>3-PHASE, 2-WINDING TRANSFORMER</b>			
DESCRIPTION	UNITS	SPEC DATA	VENDOR DATA
Accuracy Class	-	C800	
Low Voltage (Bushing Current Transformers)::			
Quantity on Each Bushing	Qty	1	
Ratio of Each CT	Pri/Sec	1200:5	
Multi-Ratio	Y/N	Y	
Accuracy Class	-	C800	
Tertiary Voltage (Bushing Current Transformers)::			
Quantity on Each Bushing	Qty	NONE	
Ratio of Each CT	Pri/Sec	N/A	
Multi-Ratio	Y/N	N/A	
Accuracy Class	-	N/A	
Tertiary (Internal Current Transformers):			
Quantity on Each Winding	Qty	NONE	
Ratio of Each CT	Pri/Sec	N/A	
Multi-Ratio	Y/N	N/A	
Accuracy Class	-	N/A	
Neutral Bushing (Bushing Current Transformers)::			
Quantity on Each Bushing	Qty	1	
Ratio of Each CT	Pri/Sec	600:5	
Multi-Ratio	Y/N	Y	
Accuracy Class	-	C800	
<b>CONNECTIONS</b>			
High Voltage (Select one):			
Overhead Cable – Open Air	Y/N	Y	
Underground Cable – Open Air	Y/N	N	
Underground Cable - Enclosed	Y/N	N	
Nonsegregated Bus Duct	Y/N	N	
Segregated Bus Duct	Y/N	N	
Isolated Phase Bus Duct	Y/N	N	
Gas insulated Bus Duct	Y/N	N	
Low Voltage Side (Select one):			
Overhead Cable – Open Air	Y/N	N	
Overhead Cable – Cable Bus	Y/N	N	
Underground Cable – Open Air	Y/N	N	
Underground Cable – Enclosed	Y/N	Y	
Nonsegregated Bus Duct	Y/N	N	
Segregated Bus Duct	Y/N	N	
Isolated Phase Bus Duct	Y/N	N	
Tertiary (Select one for external connected only):			
Overhead Cable – Open Air	Y/N	N/A	
Underground Cable – Open Air	Y/N	N/A	
Underground Cable – Enclosed	Y/N	N/A	
Nonsegregated Bus Duct	Y/N	N/A	
<b>ARRESTERS</b>			
High Voltage Side	Y/N	Y	
Manufacturer	-		

<b>DATA SHEETS 3-PHASE, 2-WINDING TRANSFORMER</b>		<b>Equipment Name: Tag No.:</b>	
<b>DESCRIPTION</b>	<b>UNITS</b>	<b>SPEC DATA</b>	<b>VENDOR DATA</b>
MCOV Rating	kV	22	
Location (Segment)	---	3	
Discharge monitor	Y/N	N	
Low Voltage Side	Y/N	N	
Manufacturer	-	N/A	
MCOV Rating	kV	N/A	
Location (Segment)	---	N/A	
Discharge monitor	Y/N	N/A	
Tertiary (External connection only):	Y/N	NONE	
Manufacturer	-	N/A	
MCOV Rating	kV	N/A	
Location (Segment)	---	N/A	
Discharge monitor	Y/N	N/A	
<b>TAP CHANGER</b>			
De-energized taps:	Y/N	Y	
Tap Location	HV/LV	HV	
No. of Steps Above Nominal (Std. 2 x +2.5%)	Qty / %	2 x +2.5%	
No. of Steps Below Nominal (Std. 2 x -2.5%)	Qty / %	2 x -2.5%	
Load Tap Changer:	Y/N	Y	
Tap Location	HV/LV	LV	
No. of Steps Above Nominal (Std. 16 x +5/8%)	Qty / %	16 / +5/8	
No. of Steps Below Nominal (Std. 16 x -5/8%)	Qty / %	16 / -5/8	
Digital Tap Changer Control	Y/N	Y	
Automatic, Manual, or Both	-	Both	
Tap Changer Control Communications Connection		Fiber Ethernet	
Transformer Paralleling Equipment	Y/N	N	
<b>Preservation System (Select One):</b>			
Conservator Tank or Inert Gas Pressure System	-	Inert Gas Pressure	
Conservator tank location	Segment	N/A	
<b>LIQUID</b>			
Total Gallons in System	gal	By Manufacturer	
Qty shipped Separately	gal	By Manufacturer	
Weight of Liquid as Shipped/Quantity of Liquid	Lb./Gal.	By Manufacturer	
Proposed Method of Liquid Shipment	-	By Manufacturer	
<b>COOLING</b>			
Radiator/Cooler Location – Segment (1,2,3,4)	-	1,3	
Cooling Equipment Fans:			
Quantity of Fan Motors per Stage	Qty	By Manufacturer	
Horsepower rating of each motor	Hp	By Manufacturer	
Rated Voltage and Phases	V, ph	240V, 1 ph	
Full Load Current	A	By Manufacturer	
Cooling Equipment Pumps:			
Quantity of Pump Motors per Stage	Qty	N/A	
Horsepower rating of each motor	Hp	N/A	
Rated Voltage and Phases	V, ph	N/A	
Full Load Current	A	N/A	

<b>DATA SHEETS</b>		<b>Equipment Name: Tag No.:</b>	
<b>3-PHASE, 2-WINDING TRANSFORMER</b>			
DESCRIPTION	UNITS	SPEC DATA	VENDOR DATA
<b>Guaranteed Power Requirements of Cooling Equipment</b>			
First Stage	kW	By Manufacturer	
Second Stage	kW	By Manufacturer	
Third Stage	kW	By Manufacturer	
<b>Maximum Expected Sound Level at Max. MVA Rating and All Fans Operating at:</b>			
1 foot	dBA	By Manufacturer	
6 feet	dBA	By Manufacturer	
<b>CONTROL CABINET</b>			
Location – Segment (1,2,3,or4)	-	2	
Ac Auxiliary Power Voltage supplied to Control Cabinet	VAC	120/240V, 1 ph	
Qty of Ac Auxiliary Power sources supplied to Control Cabinet	1,2	1	
Power Required for AC Auxiliary Power Source	kVA	By Manufacturer	
Dc Control Power Voltage supplied to Control Cabinet	VDC	125	
Dc Rated Continuous Power Required	A	By Manufacturer	
Dc Rated Peak Power Required	A		
<b>ACCESSORIES</b>			
Nitrogen Pressurization Tanks	Y/N	Y	
Special Paint	Y/N	N	
Ground Resistor	Y/N	N	
Automatic Transfer Switch for Second Power Supply	Y/N	N	
Provisions (only) for Gas Analyzer	Y/N	N	
Wheels	Y/N	N	
100% spare gaskets	Y/N	N	
<b>TESTS</b>			
ANSI Routine Tests	Y/N	Y	
Winding Insulation	Y/N	Y	
Core Insulation	Y/N	Y	
Insulation Power Factor	Y/N	Y	
Auxiliary Cooling Losses	Y/N	Y	
Single Phase Excitation & Rated Voltage	Y/N	Y	
No Load Losses & Excitation Current	Y/N	Y	
Zero Sequence Impedance	Y/N	N	
Temperature Rise	Y/N	By Manufacturer	
Low Frequency on Auxiliary Devices	Y/N	Y	
Lightning Impulse	Y/N	By Manufacturer	
Front of Wave Impulse	Y/N	N	
Switching Impulse	Y/N	N	
Partial Discharge	Y/N	N	
Audible Noise	Y/N	Y	
Dissolved Gases in Liquid Analysis	Y/N	Y	
Sweep Frequency Response Analysis (SFRA)	Y/N	Y	
<b>EFFICIENCY</b>			
At 100% of Maximum MVA	%	By Manufacturer	
At 75% of Maximum MVA	%	By Manufacturer	
At 50% of Maximum MVA	%	By Manufacturer	

<b>DATA SHEETS</b>		Equipment Name: Tag No.:	
<b>3-PHASE, 2-WINDING TRANSFORMER</b>			
DESCRIPTION	UNITS	SPEC DATA	VENDOR DATA
<b>VOLTAGE REGULATION</b>			
100% of Maximum MVA at:			
Unity Power factor	%	By Manufacturer	
80% lagging power factor	%	By Manufacturer	
80% leading power factor	%	By Manufacturer	
Excitation Current at 100% Rated Voltage and Max. MVA	%	By Manufacturer	
<b>GUARANTEED LOSSES</b>			
Auxiliary Losses at full load and Max. MVA rating	kW	By Manufacturer	
No-Load Losses at 100% Rated Voltage	kW	By Manufacturer	
Load Losses at Max. MVA Rating	KW	By Manufacturer	
<b>LOSS EVALUATION</b>			
Auxiliary Losses	\$/kW	130.53	
No-Load Losses	\$/kW	1740.27	
Load Losses	\$/kW	502.58	
<b>DIMENSIONS (APPROXIMATE)</b>			
Overall Height	in.	By Manufacturer	
Overall Width	in.	288 (Max.)	
Overall Depth	in.	215 (Max.)	
Transformer Base Width	in.	189 (Max.)	
Transformer Base Depth	in.	69 (Max.)	
Height over Tank	in.	By Manufacturer	
Height for Untanking	in.	By Manufacturer	
Minimum Distance Between Surge Arresters	in.	By Manufacturer	
Recommended Min. Space Between Transformer and Adjacent Structures	in.	By Manufacturer	
<b>WEIGHTS (APPROXIMATE)</b>			
Core and Coil	lbs.	By Manufacturer	
Tank and Fittings	lbs.	By Manufacturer	
Liquid	lbs.	By Manufacturer	
Total Transformer With Liquid	lbs.	By Manufacturer	
Total Shipping Weight	lbs.	By Manufacturer	
Weight of Largest Piece for Handling	lbs.	By Manufacturer	
<b>DELIVERY</b>			
Method of Shipment (truck, rail, barge, ship)	-	By Manufacturer	
Total No. of Weeks from Award of Contract, FOB site	wks	By Manufacturer	
Submittal of Review Drawings After Award of Contract	wks	By Manufacturer	
Manufacturing Time after Receipt of Approved Drawings	wks	By Manufacturer	
<b>SPECIAL REQUIREMENTS</b>			
List parts Requiring Field Assembly	-	By Manufacturer	
Describe Extent of Field Welding	-	By Manufacturer	

<b>DATA SHEETS 3-PHASE, 2-WINDING TRANSFORMER</b>		Equipment Name: Tag No.:	
DESCRIPTION	UNITS	SPEC DATA	VENDOR DATA
List of Required Maintenance Tools Furnished With Equipment	-	By Manufacturer	
List of Required Spare Parts Furnished With Equipment - High Side Bushing with Gasket – Qty. 1 - Low Side Bushing with Gasket – Qty. 1 - LTC Tank Gaskets – Qty. 1 set		Manufacturer to provide \$/part	
List any Special Considerations Maximum fault current available from tertiary in kA from both HV and LV windings:	-		

END OF SECTION

- 1) Philip E. Schulz
- 2) Seth G. Weiss