

**AGREEMENT FOR THE SUPPLY OF TRANSFORMERS  
PROJECT #11281.F**

**THIS AGREEMENT FOR EQUIPMENT / SUPPLIES PROCUREMENT** is made this \_\_\_\_ day of April, 2024, and entered into by and between the City of Meridian, a municipal corporation organized under the laws of the State of Idaho, hereinafter referred to as "CITY", 33 East Broadway Avenue, Meridian, Idaho 83642, and SUPPLIER, hereinafter referred to as "ECB SOLUTIONS LLC", whose business address is 669 Centerpointe Cove, Oxford MS 38655.

**INTRODUCTION**

Whereas, the City has a need for POWER TRANSFORMERS; and

WHEREAS, the SUPPLIER is specially trained, experienced and competent to provide and has agreed to provide such equipment;

NOW, THEREFORE, in consideration of the mutual promises, covenants, terms and conditions hereinafter contained, the parties agree as follows:

**TERMS AND CONDITIONS**

**1. Equipment / Supply Specifications & Requirements:**

1.1 SUPPLIER shall supply the equipment, supplies and services to the City upon execution of this Agreement and receipt of the City's written notice to proceed, all items, and comply in all respects, as specified in the Invitation to Bid titled "WRRF Tertiary Filtration & Primary Power Transformers" and suppliers bid dated by which by this reference are incorporated herein, together with all addendums issued.

1.2 The SUPPLIER shall provide all equipment and services under this Agreement consistent with the requirements and standards established by applicable federal, state and city laws, ordinances, regulations and resolutions and the UCC. The SUPPLIER represents and warrants that it will perform its work in accordance with generally accepted industry standards and practices for the profession or professions that are used in performance of this Agreement and that are in effect at the time of performance of this Agreement. Delivery shall take place within x weeks of

## 2. Consideration

2.1 The SUPPLIER shall be compensated on a Fixed Price basis as provided in Attachment B "Payment Schedule" attached hereto and by reference made a part hereof, for the Not-To-Exceed amount of \$445,000.00.

2.2 The SUPPLIER shall provide the City with a detailed invoice upon delivery of all equipment and supplies, which the City will pay within 30 days of receipt of a correct invoice and approval by the City Project Manager. The City will not withhold any Federal or State income taxes or Social Security Tax from any payment made by City to SUPPLIER under the terms and conditions of this Agreement. Payment of all taxes and other assessments on such sums is the sole responsibility of SUPPLIER.

2.3 Except as expressly provided in this Agreement, SUPPLIER shall not be entitled to receive from the City any additional consideration, compensation, salary, wages, or other type of remuneration for services rendered under this Agreement., including, but not limited to, meals, lodging, transportation, drawings, renderings or mockups. Specifically, SUPPLIER shall not be entitled by virtue of this Agreement to consideration in the form of overtime, health insurance benefits, retirement benefits, paid holidays or other paid leaves of absence of any type or kind whatsoever.

## 3. Invoices

Invoices shall be rendered in duplicate and shall include: (1) Purchase Order number; (2) pricing; (3) quantity; (4) description; (5) any sales taxes or use taxes as separate items, giving permit number authorizing collection of use taxes; (6) point of shipment; (7) method and class of shipment; (8) complete routing of shipment; and (9) whether transportation expense has been prepaid. Seller/Contractor/Contractor agrees to make a separate invoice for each order and shipment. Unless otherwise expressly provided in the Purchase Order, all taxes, duties, tolls, fees, import charges, or other governmental exactions shall be deemed included in the purchase price of the supplies and services and the City shall have no liability to pay Seller/Contractor/Contractor or any third party any amount in excess of the specified purchase price. City of Meridian, a local governmental entity of the State of Idaho, is exempt from any Federal Manufacturer's Excise Tax under the provision of Section 4221(a)(4) of the Internal Revenue Code. All invoices shall exclude such excise tax. All invoices shall be sent to the following address:

City of Meridian, Accounts Payable, 33. East Broadway Ave., Meridian, Idaho 83642.

**4. Term:**

4.1 This agreement shall become effective upon execution by both parties, and shall expire upon (a) completion of the agreed upon work, or (b) unless sooner terminated as provided below or unless some other method or time of termination is listed in Attachment A.

4.2 Should SUPPLIER default in the performance of this Agreement or materially breach any of its provisions, City, at City's option, may terminate this Agreement by giving written notification to SUPPLIER.

4.3 Should City fail to pay SUPPLIER all or any part of the compensation set forth in Attachment B of this Agreement on the date due, SUPPLIER, at the SUPPLIER's option, may terminate this Agreement if the failure is not remedied by the City within thirty (30) days from the date payment is due.

**5. Termination:**

If, through any cause, SUPPLIER, its officers, employees, or agents fails to fulfill in a timely and proper manner its obligations under this Agreement, violates any of the covenants, agreements, or stipulations of this Agreement, falsifies any record or document required to be prepared under this agreement, engages in fraud, dishonesty, or any other act of misconduct in the performance of this contract, or if the City Council determines that termination of this Agreement is in the best interest of CITY, the CITY shall thereupon have the right to terminate this Agreement by giving written notice to SUPPLIER of such termination and specifying the effective date thereof at least fifteen (15) days before the effective date of such termination.

Notwithstanding the above, SUPPLIER shall not be relieved of liability to the CITY for damages sustained by the CITY by virtue of any breach of this Agreement by SUPPLIER, and the CITY may withhold any payments to SUPPLIER for the purposes of set-off until such time as the exact amount of damages due the CITY from SUPPLIER is determined. This provision shall survive the termination of this agreement and shall not relieve SUPPLIER of its liability to the CITY for damages.

**6. Independent SUPPLIER:**

6.1 In all matters pertaining to this agreement, SUPPLIER shall be acting as an independent SUPPLIER, and neither SUPPLIER nor any officer,

employee or agent of SUPPLIER will be deemed an employee of CITY. Except as expressly provided in Attachment A, SUPPLIER has no authority or responsibility to exercise any rights or power vested in the City and therefore has no authority to bind or incur any obligation on behalf of the City.

The selection and designation of the personnel of the CITY in the performance of this agreement shall be made by the CITY.

6.2 SUPPLIER, its agents, officers, and employees are and at all times during the term of this Agreement shall represent and conduct themselves as independent SUPPLIERS and not as employees of the City.

6.3 SUPPLIER shall determine the method, details and means of performing the work and services to be provided by SUPPLIER under this Agreement. SUPPLIER shall be responsible to City only for the requirements and results specified in this Agreement and, except as expressly provided in this Agreement, shall not be subjected to City's control with respect to the physical action or activities of SUPPLIER in fulfillment of this Agreement. If in the performance of this Agreement any third persons are employed by SUPPLIER, such persons shall be entirely and exclusively under the direction and supervision and control of the SUPPLIER.

## **7. Indemnification and Insurance:**

- a. SUPPLIER shall indemnify and save and hold harmless CITY from and for any and all losses, claims, actions, judgments for damages, or injury to persons or property and losses and expenses and other costs including litigation costs and attorney's fees, arising out of, resulting from, or in connection with the performance of this Agreement by the SUPPLIER, its servants, agents, officers, employees, guests, and business invitees, and not caused by or arising out of the tortuous conduct of CITY or its employees. SUPPLIER shall maintain, and specifically agrees that it will maintain, throughout the term of this Agreement, liability insurance, in which the CITY shall be named an additional insured in the minimum amounts as follow: General Liability One Million Dollars (\$1,000,000) per incident or occurrence, Automobile Liability Insurance One Million Dollars (\$1,000,000) per incident or occurrence and Workers' Compensation Insurance, in the statutory limits as required by law.. The limits of insurance shall not be deemed a limitation of the covenants to indemnify and save and hold harmless CITY; and if CITY becomes liable for an amount in excess of the insurance limits, herein provided, SUPPLIER covenants and agrees to indemnify and save and hold harmless CITY from and for all such losses, claims, actions, or judgments for damages or injury to persons or property and other costs, including litigation costs and attorneys' fees, arising out of, resulting from , or in connection with the performance of this Agreement by the SUPPLIER or SUPPLIER's

officers, employs, agents, representatives or subSUPPLIERS and resulting in or attributable to personal injury, death, or damage or destruction to tangible or intangible property, including use of. SUPPLIER shall provide CITY with a Certificate of Insurance, or other proof of insurance evidencing SUPPLIER'S compliance with the requirements of this paragraph and file such proof of insurance with the CITY at least ten (10) days prior to the date SUPPLIER begins performance of it's obligations under this Agreement. In the event the insurance minimums are changed, SUPPLIER shall immediately submit proof of compliance with the changed limits. Evidence of all insurance shall be submitted to the City Purchasing Agent with a copy to Meridian City Accounting, 33 East Broadway Avenue, Meridian, Idaho 83642.

7.2 Any deductibles, self-insured retention, or named insureds must be declared in writing and approved by the City. At the option of the City, either: the insurer shall reduce or eliminate such deductibles, self-insured retentions or named insureds; or the SUPPLIER shall provide a bond, cash or letter of credit guaranteeing payment of losses and related investigations, claim administration and defense expenses.

7.3 To the extent of the indemnity in this contract, SUPPLIER's Insurance coverage shall be primary insurance regarding the City's elected officers, officials, employees and volunteers. Any insurance or self-insurance maintained by the City or the City's elected officers, officials, employees and volunteers shall be excess of the SUPPLIER's insurance and shall not contribute with SUPPLIER's insurance except as to the extent of City's negligence.

- b. The SUPPLIER's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

7.4 All insurance coverages for Suppliers subs shall be subject to all of the insurance and indemnity requirements stated herein.

7.5 The limits of insurance described herein shall not limit the liability of the Supplier and Supplier's agents, representatives, employees or subcontractors.

7.6 The limits of insurance described herein shall not limit the liability of the Contractor and Contractor's agents, representatives, employees or subcontractors.

8. **Bonds:** Payment, Warranty and Performance Bonds are required.
9. **Warranty:** In addition to any warranty required in the specifications, all equipment, coatings, valves, controls, and other components provided under this agreement shall be guaranteed for two (2) years against defects in workmanship and materials from the notice of acceptance.
10. **Notices:** Any and all notices required to be given by either of the parties hereto, unless otherwise stated in this agreement, shall be in writing and be deemed communicated when mailed in the United States mail, certified, return receipt requested, addressed as follows:

City of Meridian  
Procurement Manager  
33 E. Broadway Avenue  
Meridian, Idaho 83642  
Ph. (208) 489-0417  
Email: [kwatts@meridiacity.org](mailto:kwatts@meridiacity.org)

Either party may change their address for the purpose of this paragraph by giving written notice of such change to the other in the manner herein provided.

11. **Attorney Fees:** Should any litigation be commenced between the parties hereto concerning this Agreement, the prevailing party shall be entitled, in addition to any other relief as may be granted, to court costs and reasonable attorneys' fees as determined by a Court of competent jurisdiction. This provision shall be deemed to be a separate contract between the parties and shall survive any default, termination or forfeiture of this Agreement.
12. **Time is of the Essence:** The parties hereto acknowledge and agree that time is strictly of the essence with respect to each and every term, condition and provision hereof, and that the failure to timely perform any of the obligations hereunder shall constitute a breach of, and a default under, this Agreement by the party so failing to perform.
13. **Assignment:** It is expressly agreed and understood by the parties hereto, that SUPPLIER shall not have the right to assign, transfer, hypothecate or sell any of its rights under this Agreement except upon the prior express written consent of CITY.
14. **Discrimination Prohibited:** In performing the Work required herein, SUPPLIER shall not unlawfully discriminate in violation of any federal, state

or local law, rule or regulation against any person on the basis of race, color, religion, sex, national origin or ancestry, age or disability.

**15. Reports and Information:**

15.1 At such times and in such forms as the CITY may require, there shall be furnished to the CITY such statements, records, reports, data and information as the CITY may request pertaining to matters covered by this Agreement.

15.2 SUPPLIER shall maintain all writings, documents and records prepared or compiled in connection with the performance of this Agreement for a minimum of four (4) years from the termination or completion of this or Agreement. This includes any handwriting, typewriting, printing, photo static, photographic and every other means of recording upon any tangible thing, any form of communication or representation including letters, words, pictures, sounds or symbols or any combination thereof.

**16. Audits and Inspections:** Subject to applicable laws respecting the protection of privacy and the City's requirement to comply with the Idaho Public Records Act, at any time during normal business hours and as often as the CITY may deem necessary, there shall be made available to the CITY for examination all of SUPPLIER'S records with respect to all matters covered by this Agreement. SUPPLIER shall permit the CITY to audit, examine, and make excerpts or transcripts from such records, and to make audits of all contracts, invoices, materials, payrolls, records of personnel, conditions of employment and other data relating to all matters covered by this Agreement.

**17. Publication, Reproduction and Use of Material:** No material produced in whole or in part under this Agreement shall be subject to copyright in the United States or in any other country. The CITY shall have unrestricted authority to publish, disclose and otherwise use, in whole or in part, any reports, data or other materials prepared under this Agreement.

**18. Compliance with Laws:** In performing the scope of work required hereunder, SUPPLIER shall comply with all applicable laws, ordinances, and codes of Federal, State, and local governments.

**Certifications.**

Pursuant to Idaho Code §§ 67-2359 and 67-2346, Contractor hereby certifies:

- A. That Contractor is not currently owned or operated by the government of China and will not, for the duration of this Contract, be owned or operated by the government of China.
  - B. That Contractor is not currently engaged in, and will not for the duration of the Contract engage in, a boycott of goods or services from Israel or territories under its control.
19. **Changes:** The CITY may, from time to time, request changes in the Scope of Work to be performed hereunder. Such changes, including any increase or decrease in the amount of SUPPLIER'S compensation, which are mutually agreed upon by and between the CITY and SUPPLIER, shall be incorporated in written amendments which shall be executed with the same formalities as this Agreement.
20. **Construction and Severability:** If any part of this Agreement is held to be invalid or unenforceable, such holding will not affect the validity or enforceability of any other part of this Agreement so long as the remainder of the Agreement is reasonably capable of completion.
21. **Waiver of Default:** Waiver of default by either party to this Agreement shall not be deemed to be waiver of any subsequent default. Waiver or breach of any provision of this Agreement shall not be deemed to be a waiver of any other or subsequent breach, and shall not be construed to be a modification of the terms of this Agreement unless this Agreement is modified as provided above.
22. **Advice of Attorney:** Each party warrants and represents that in executing this Agreement. It has received independent legal advice from its attorney's or the opportunity to seek such advice.
23. **Entire Agreement:** This Agreement contains the entire agreement of the parties and supersedes any and all other agreements or understandings, oral or written, whether previous to the execution hereof or contemporaneous herewith.
24. **Order of Precedence:** The order or precedence shall be the contract agreement, the Invitation for Bid document, then the winning bidders submitted bid document.
25. **Applicable Law:** This Agreement shall be governed by and construed and enforced in accordance with the laws of the State of Idaho, and the ordinances of the City of Meridian.



26. **Approval Required:** This Agreement shall not become effective or binding until approved by the City of Meridian.

**CITY OF MERIDIAN**

BY: \_\_\_\_\_  
Keith Watts, Procurement Manager

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

**ECB SOLUTIONS LLC**

BY:  \_\_\_\_\_  
Ellis Bledsoe, Principal

Dated: 4/3/2024 \_\_\_\_\_

# ATTACHMENT 1

## SPECIFICATIONS / SCOPE OF WORK

### SECTION 26 12 19

#### PAD-MOUNTED, LIQUID-FILLED, MEDIUM-VOLTAGE TRANSFORMERS

##### PART 1 - GENERAL

###### 1.1 SUMMARY

- A. Section includes pad-mounted, liquid-filled, medium-voltage distribution transformers, with primary and secondary bushings within air-terminal enclosures.

###### 1.2 DEFINITIONS

- A. BIL: Basic Impulse Insulation Level.
- B. Bushing: An insulating structure including a central conductor, or providing a central passage for a conductor, with provision for mounting on a barrier, conducting or otherwise, for the purpose of insulating the conductor from the barrier and conducting current from one side of the barrier to the other.
- C. Bushing Elbow: An insulated device used to connect insulated conductors to separable insulated connectors on dead-front, pad-mounted transformers and to provide a fully insulated connection. This is also called an "elbow connector."
- D. Bushing Insert: That component of a separable insulated connector that is inserted into a bushing well to complete a dead-front, load break or nonload break, separable insulated connector (bushing).
- E. Bushing Well: A component of a separable insulated connector, either permanently welded or clamped to an enclosure wall or barrier, having a cavity that receives a replaceable component (bushing insert) to complete the separable insulated connector (bushing).
- F. Elbow Connector: See "bushing elbow" above.

###### 1.3 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
  1. The Institute of Electrical and Electronics Engineer, Inc. (IEEE):

- a. 386 - IEEE Standard for Separable Insulated Connector Systems for Power Distribution Systems Rated 2.5 kV through 35 kV.
  - b. C2 - National Electric Safety Code.
  - c. C37.47 - IEEE Standard Specifications for High-Voltage (>1000 V) Distribution Class Current-Limiting Type Fuses and Fuse Disconnecting Switches.
  - d. C57.12.00 - IEEE Standard for General Requirements for Liquid-Immersed Distribution, Power, and Regulating Transformers.
  - e. C57.12.26 - IEEE Standard for Pad-Mounted, Compartmental-Type, Self-Cooled, Three-Phase Distribution Transformers for Use with Separable Insulated High-Voltage Connectors (34 500 GrdY/19 920 Volts and Below, 2500 kVA and Smaller).
  - f. C57.12.28 - IEEE Standard for Pad-Mounted Equipment - Enclosure Integrity.
  - g. C57.12.36 - IEEE Standard Requirements for Liquid-Immersed Distribution Substation Transformers.
  - h. C57.12.70 - IEEE Standard for Standard Terminal Markings and Connections for Distribution and Power Transformers.
  - i. C57.12.90 – IEEE Standard Test Code for Liquid-Immersed Distribution, Power, and Regulating Transformers.
  - j. C62.11 - IEEE Standard for Metal-Oxide Surge Arresters for AC Power Circuits (>1 kV).
2. InterNational Electrical Testing Association (NETA):
    - a. ATS - Standard for Acceptance Testing Specifications for Electrical Power Equipment and Systems.
  3. Nationally Recognized Testing Laboratories (NRTL).
  4. American Society of Civil Engineers (ASCE):
    - a. SEI 7 – 10 - Minimum Design Loads for Buildings and Other Structures.
  5. Department of Energy (DOE):
    - a. 10 CFR 431, Subpart K – Distribution Transformers.
  6. National Fire Protection Association (NFPA): 70
  7. International Organization for Standardization (ISO):
    - a. 9001, Quality Management Systems Requirements.
  8. American Society for Testing and Materials (ASTM):
    - a. A 167 - Specification for stainless steel and heat-resisting chromium-nickel steel plate, sheet, and strip
    - b. D 117 - Standard Guide for Sampling, Test Methods, and Specifications for Electrical Insulating Oils of Petroleum Origin.
    - c. D 877 - Standard Test Method for Dielectric Breakdown Voltage of Insulating Liquids Using Disk Electrodes.
    - d. D 923 - Standard Practices for Sampling Electrical Insulating Liquids.
    - e. D 971 - Standard Test Method for Interfacial Tension of Oil Against Water by the Ring Method.
    - f. D 974 - Standard Test Method for Acid and Base Number by Color-Indicator Titration.

- g. D 1500 - Standard Test Method for ASTM Color of Petroleum Products (ASTM Color Scale).
  - h. D 1524 - Standard Test Method for Visual Examination of Used Electrical Insulating Liquids in the Field.
  - i. D 1816 - Standard Test Method for Dielectric Breakdown Voltage of Insulating Liquids Using VDE Electrodes.
  - j. D 3487 - Standard Specification for Mineral Insulating Oil Used in Electrical Apparatus.
9. Underwriters Laboratories (UL):
    - a. 1562 - Standard for Transformers, Distribution, Dry-Type - Over 600 Volts.
  10. National Electrical Manufacturers Association (NEMA):
    - a. TR 1 – Transformers, Regulators, and Reactors.
  11. Occupational Safety and Health Administration (OSHA):
    - a. 29 CFR 1910.269 - Electric Power Generation, Transmission, and Distribution.
  12. Uniform Building Code (UBC): Section 1630, Lateral Force on Elements of Structures, Non-Structural Components, and Equipment Supported by Structures.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product include:
  1. Rated capacities.
  2. Operating characteristics.
  3. Furnished specialties.
  4. Accessories.
- B. Shop Drawings: For liquid-filled, medium-voltage transformers:
  1. Descriptive information for the transformer and all specified components.
  2. Dimensional drawings, plans and elevations showing major components and features.
    - a. Plan view.
    - b. Cross-section of equipment base.
    - c. Clearances.
    - d. Required workspace.
    - e. Locations of penetrations for grounding and conduits.
  3. Details of equipment assemblies and indicate:
    - a. Dimensions.
    - b. Weights.
    - c. Loads.
    - d. Required clearances.
    - e. Method of field assembly.
    - f. Components.
    - g. Location and size of each field connection.

4. Single-line diagram.
5. List of materials.
6. Nameplate data.
7. Nameplate data.
8. High voltage switch arrangement (one-line diagram) for each transformer,
9. Manufacturer's published time-current curves of the transformer high-voltage fuses, with transformer damage curve, inrush curve, and thru fault current indicated.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For testing agency.
- B. Product Certificates: For transformers:
  1. Signed by product manufacturer.
- C. Quality Control Submittals:
  1. Factory quality control reports.
  2. Field quality control reports.

## 1.6 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Design, test, and assemble in accordance with applicable standards of IEEE C57.12.00, C57.12.22, C57.12.26, C57.12.70, C57.12.80, C57.12.90, and C57.12.92.

## 1.7 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data for transformer and accessories:
  1. Operation manual.
  2. Maintenance manual.
  3. Emergency manual.
  4. Manufacturer's written instructions for preventative maintenance.
  5. Time-current curves of overcurrent protective devices.
  6. Local Representatives
    - a. Where to order parts: Name, Address, Telephone.
    - b. Service Problems:
      - 1) Who to call.
      - 2) How to get emergency help.

1.8 EXTRA MATERIALS

- A. Furnish, tag, and box for shipment and storage the following spare parts, special tools, and materials.
  - 1. One quart of paint to match color and quality of equipment final shop finish.
  - 2. Two spare fuses for each transformer.

**PART 2 - PRODUCTS**

2.1 MANUFACTURERS:

- A. Eaton
- B. ABB
- C. Square D Co.
- D. General Electric
- E. Howard Industries, Inc.

2.2 TRANSFORMER SCHEDULE

- A. Provide three-phase transformers as follows:

<b>QUANTITY</b>	<b>SIZE</b>	<b>PRIMARY VOLTAGE</b>	<b>SECONDARY VOLTAGE</b>
3	75-kVA	12,470GrdY/7,200V	208GrdY/120V
2	2500-kVA	12,470GrdY/7,200V	480GrdY/277V

2.3 GENERAL

- A. Transformer Locations: Outdoors.
- B. Winding Connections: The connection of windings and terminal markings shall comply with IEEE C57.12.70.
- C. Efficiency: Comply with 10 CFR 431, Subpart K (DOE 2016).
- D. Insulation: Transformer kVA rating shall be as follows: The average winding temperature rise above a 30 deg C ambient temperature shall not exceed 65 deg C and 80 deg C hottest-spot temperature rise at rated kVA when tested according to IEEE C57.12.90, using combination of connections and taps that give the highest average winding temperature rise.

- E. Tank: Sealed, with welded-on cover.
- F. Enclosure Integrity: Comply with IEEE C57.12.28 for pad-mounted enclosures that contain energized electrical equipment in excess of 600 V that may be exposed to the public.
- G. Mounting: An integral skid mounting frame, suitable to allow skidding or rolling of transformer in any direction, and with provision for anchoring frame to pad.
- H. Insulating Liquids:
  - 1. Mineral Oil: ASTM D 3487, Type II, and tested for compliance with ASTM D 117.
    - a. Retro fillable with homogeneous biodegradable fluid if the Owner decides to do so in the future.
- I. Sound level shall comply with NEMA TR 1 requirements.
- J. Corrosion Protection:
  - 1. Transformer coating system shall be factory applied, complying with requirements of IEEE C57.12.28, in manufacturer's standard color Munsell 7GY3.29/1.5 green.
- K. Warning Labels and Signs:
  - 1. High-Voltage Warning Label: Provide self-adhesive warning signs on outside of high-voltage compartment door(s). Sign legend shall be "DANGER HIGH VOLTAGE" printed in two lines of nominal 2-inch (50-mm) high letters. The word "DANGER" shall be in white letters on a red background and the words "HIGH VOLTAGE" shall be in black letters on a white background.
  - 2. Arc Flash Warning Label: Provide self-adhesive warning signs on outside of high-voltage compartment door(s), warning of potential electrical arc flash hazards and appropriate personal protective equipment required.
- L. Service Conditions
  - 1. Transformers shall be suitable for operation under service conditions specified as usual service conditions in IEEE C57.12.00.

## 2.4 THREE PHASE TRANSFORMERS

- A. Capacities and Characteristics:
  - 1. Self-Cooled Rating, Class ONAN. Comply with IEEE C57.12.00 for cooling class.
  - 2. Power Rating (kVA): As specified herein.
  - 3. Primary Voltage Ratings: 12,470GrdY/7,200V, three-phase, 60-Hz.
  - 4. Secondary Voltage Ratings: 480GrdY/277V and 208GrdY/120V, 60-Hz as specified herein.

5. Taps: Comply with IEEE C57.12.26 requirements.
  - a. 480GrdY/277V Units: Full capacity, two 2-1/2 percent below and two 2-1/2 percent above, rated voltage.
  - b. 208GrdY/120V Units: Full capacity, four 2-1/2 percent below rated voltage.
  - c. Externally operated no-load tap changer.
  - d. Provisions for locking handle in any position.
  
6. Transformer BIL (kV): Comply with IEEE C57.12.26 requirements.
  - a. Primary: 95-kV BIL.
  - b. Secondary: 30-kV BIL (600V or less).
  
- B. Windings Material: Copper.
  
- C. Impedance: Manufacturer's standard.
  
- D. Wye-wye transformers wound on four-or five legged cores.
  
- E. Terminal Compartments
  1. General: ANSI C57.12.28, enclosed high and low voltage compartments side by side, separated by steel barrier, bolted to transformer tank. Terminal compartment enclosure shall have no exposed screws, bolts, or other fasteners which are externally removable.
    - a. Doors:
      - 1) Individual, full-height, air-filled.
      - 2) Low voltage door with three-point latching mechanism, vault type handle, and single padlocking provision.
      - 3) High voltage door fastenings inaccessible until low voltage door has been opened.
      - 4) Door bolts: Hex-head type.
      - 5) Lift-off, stainless steel hinges and door stops.
      - 6) Removable front sill to facilitate rolling of skidding over conduit stubs.
      - 7) Recessed lock pocket, with steel door release bolt adjacent to secondary compartment door handle.
  2. High Voltage Compartment:
    - a. Dead-front in accordance with ANSI C57.12.26 type construction.
    - b. Protective fuses.
    - c. High voltage bushings.
    - d. Transformer grounding pad.
    - e. High voltage switch.
  3. Low Voltage Compartment:
    - a. Live front in accordance with ANSI C57.12.26 type construction.
    - b. Low voltage bushings.
    - c. Stainless steel grounding pad.
    - d. Stainless steel equipment nameplate.
    - e. Magnetic liquid level indicator with high and low alarm contacts.



- f. 1-inch upper filter press and filling plug.
- g. Drain valve with sampling device.
- h. Dial type thermometer and alarm contacts.
- i. Pressure relief valve.
- j. Pressure relief device, self-resealing with indicator.
- k. Pressure-vacuum gauge.
- l. Machine-engraved nameplate, made of anodized aluminum or stainless steel.

F. Bushings

- 1. High Voltage:
  - a. Dead-front termination:
    - 1) Universal bushing wells and bushing well inserts rated 15 kV in accordance with IEEE 386.
    - 2) Bushings externally clamped and front removable.
    - 3) Rated for 200 amperes continuous.
    - 4) Standoff brackets located to bushings.
    - 5) Terminations arranged for loop feed.
- 2. Low Voltage (below 600V):
  - a. Molded epoxy bushing clamped to tank. 6-hole spade-type terminals for units 2,000 kVA and smaller. 8-hole spade-type terminals for 2,500 kVA units.
  - b. Rated 150 percent of continuous full-load current.
  - c. Internally connected neutral extended to neutral bushing.

G. High Voltage Switch

- a. Provide OFF-ON load break, gang operated, oil-immersed switch.
- b. Hot stick operated handle located in high voltage compartment.
- c. Capable of operating at full-load current.
- d. Switch Configuration: Radial.

H. High Voltage Protection

- a. Bayonet-type, liquid-immersed, expulsion fuses in series with liquid-immersed, partial-range, current-limiting fuses. Bayonet fuse shall sense both high currents and high oil temperature to provide thermal protection to the transformer. Connect current-limiting fuses ahead of radial-feed load-break switch.
- b. Provide oil retention valve and an external drip shield inside the housing to eliminate or minimize oil spills. Valve shall close when fuse holder is removed, and an external drip shield is installed.
- c. Provide a conspicuously displayed warning adjacent to bayonet fuse(s), cautioning against removing or inserting fuses unless transformer has been de-energized and tank pressure has been released.

I. Surge Arresters

- 1. Comply with IEEE C62.11, Distribution Class; metal-oxide-varistor type, fully shielded, separable-elbow type, suitable for plugging into the inserts provided in

the high-voltage section of the transformer. Connected in each phase of incoming circuit and ahead of any disconnecting device.

J. Tank Grounding Pads

1. High and Low Voltage Compartments:
  - a. Connected together with bare No. 2/0 stranded copper conductors.
  - b. Wye-wye high and low voltage neutrals internally connected with link and brought out to insulated low voltage bushing externally grounded to tank.
  - c. Low voltage neutral connected to externally mounted insulating bushing in low voltage compartment and grounded to tank with removable strap.

K. Tap Changer Warning Sign

1. Red laminated plastic, engraved to white core.
2. Engrave to read DO NOT OPERATE WHEN TRANSFORMER ENERGIZED.
3. Mount above tap changer handle.

## 2.5 SOURCE QUALITY CONTROL

A. Provide manufacturer's certificate that the transformer design tests comply with IEEE C57.12.90.

1. Perform the following factory-certified routine tests:
  - a. Resistance.
  - b. Turns ratio, polarity, and phase relation.
  - c. Transformer no-load losses and excitation current at 100 percent of ratings.
  - d. Transformer impedance voltage and load loss.
  - e. Operation of all devices.
  - f. Lightning impulse.
  - g. Low frequency.
  - h. Leak.
  - i. Transformer no-load losses and excitation current at 110 percent of ratings.
  - j. Induced potential.
  - k. Resistance measurements of all windings on rated voltage connection and at tap extreme connections.
  - l. Ratios on rated voltage connection and at tap extreme connections.
  - m. Polarity and phase relation on rated voltage connection.
  - n. No-load loss at rated voltage on rated voltage connection.
  - o. Exciting current at rated voltage on rated voltage connection.
  - p. Impedance.

## PART 3 - EXECUTION (NOT USED)

**END OF SECTION**

Attachment B

**MILESTONE / PAYMENT SCHEDULE**

A. Total and complete compensation for this Agreement shall not exceed \$445,000.

<b>MILESTONE SCHEDULE</b>			<b>ESTIMATED PAYMENT SCHEDULE</b>
Milestone 1	Submission of all Submittals	14 Days from Conditional Notice of Award	10%
Milestone 2	Approval of all Submittals	28 Days from Notice to Proceed	20%
Milestone 3	Equipment Delivery	880 Days from Notice to Proceed	60%
Milestone 4	Approval of Operation & Maintenance Manual Submittal	910 Days from Notice to Proceed	5%
Milestone 5	Final Completion	910 Days from Notice to Proceed	5%

<b>PRICING SCHEDULE</b>					
Furnish all labor, materials, equipment, and incidentals as required for the above-named project, per the attached drawings and specifications.					
<b>Equipment and Manufacturer's Services</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>PRICE</b>	<b>EXTENDED PRICE</b>
1	75-kVA 208GrdY/120V Transformer	3	EA	\$49,000.00	\$147,000.00
2	2500-kVA 480GrdY/277V Transformer	2	EA	\$149,000.00	\$298,000.00
				<b>TOTAL</b>	<b><u>\$445,000.00</u></b>