Madison Metropolitan Sewerage District

# Request for Proposals

# 2025 Electrical Equipment Maintenance Project

**Madison, Wisconsin**

**October 2025**

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**ADVERTISEMENT FOR BIDS**

**MADISON METROPOLITAN SEWERAGE DISTRICT**

**2025 ELECTRICAL EQUIPMENT MAINTENANCE TESTING PROJECT**

The Madison Metropolitan Sewerage District (MMSD or the District) will receive sealed bids for the 2025 Electrical Equipment Maintenance Testing Project. Bids will be received at the office of the District, 1610 Moorland Road, Madison, Wisconsin 53713 until 1:00 p.m. local time on Tuesday, November 4, 2025, at which time and place all bids will be publicly opened and read aloud.

The project is located at MMSD's Nine Springs Wastewater Treatment Plant and its 18 Regional Pump Stations, all located in Dane County, Wisconsin.

The project scope includes routine maintenance testing of large electrical equipment such as dry type transformers, metal clad transformers, low and high voltage motors, low voltage MCC's, substation transformers, automatic transfers switches, low voltage power circuit breakers, freon type transformers, and low voltage molded case circuit breakers.

Complete digital project bidding documents are available by visiting the District's website at https://www.madsewer.org/contracting-center/. No paper project documents will be provided by MMSD.

Bids shall be addressed to the Madison Metropolitan Sewerage District; Erik Rehr, Maintenance and Reliability Manager; 1610 Moorland Road; Madison, Wisconsin 53713; and shall be marked "Sealed Bid, 2025 Electrical Equipment Maintenance Testing Project." This project is exempt from State of Wisconsin sales and use taxes in accordance with Wisconsin Administrative Rule Tax 11.11 pursuant to Section 77.54(26) of the Wisconsin Statutes. Contract letting is subject to the provisions of Section 66.0901, Wisconsin Statutes.

All prospective bidders must submit qualifications for review and approval by the District. Prequalification applications will be distributed with the Contract documents or can be obtained from the District. Bidders who have already submitted prequalification documentation to the District within the current calendar year need not resubmit but must notify the District in writing by the due date (using the form provided) of their desire to prequalify for this specific work. Prequalification applications must be completed and emailed to prequalifications@madsewer.org no later than 4:00 p.m., Monday, October 27, 2025. Bidders will be notified only of disqualification no later than 4:00 p.m., Thursday, October 30, 2025. If a bidder has not filed the prequalification application, their bid shall not be opened.

All questions regarding the project shall be directed to Erik Rehr, Maintenance and Reliability Manager, Madison Metropolitan Sewerage District. Phone: (608) 709-1833, Cell (608) 514-3126, FAX (608) 222-2703, email: rfp@madsewer.org.

The District reserves the right to reject any or all bids or to waive any technicality and accept any bid that may, in its opinion, be advantageous to the District.

In connection with the performance of work under this contract, the contractor agrees not to discriminate against any employee or applicant for employment because of age, race, religion, color,

handicap, sex, physical condition, developmental disability, or national origin. This provision shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff and termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor further agrees to post in conspicuous places, available for employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

Published by authority of the Commissioners of the Madison Metropolitan Sewerage District.

By_____
Bradley Murphy, Secretary

Madison, Wisconsin
October 2025

**INSTRUCTIONS TO BIDDERS FOR**
**MADISON METROPOLITAN SEWERAGE DISTRICT**
**2025 ELECTRICAL EQUIPMENT MAINTENANCE TESTING PROJECT**

## 1. PREPARATION OF PREPOSALS

### a. General

All Proposals must be made on the forms herein provided. In case of a conflict between a unit price bid and the corresponding extended amount, the unit price bid shall govern.

When any proposal by combination or joint venture is presented, the District will require that one responsible party be delegated authority to act for the joint venture.

### b. Basis on Which Bids Are Requested

Bids are requested on the basis of lump sum and unit prices as clearly set forth in the Proposal forms. Where unit prices are requested, quantities are subject to variation, and payment will be made on the basis of actual quantities of completed work as measured by the Engineer. Such measurement will be made in terms of the units indicated in the Proposal form.

All work included under the Contract Documents but not listed as bid items shall be considered as work incidental and subsidiary to the bid items and will not be measured for payment.

When so indicated in the Proposal form, the bidder shall provide supplemental unit prices for the purpose of additions to, deductions from, or modifications of the planned work.

### c. Bidder's Responsibility

The bidders are required to carefully review all the Contract Documents and to inform themselves of the conditions under which the work is to be performed. The bidder, if awarded the Contract, shall not be allowed any extra compensation by reason of his failure to have fully informed himself prior to the bidding of any matter or thing which such bidder might have fully informed himself. The bidder shall obtain the permission of the property owner and the District prior to entering any private property for inspection, subsurface exploration, or any other purposes.

d. Interpretation of Contract Documents

If the bidder is in doubt as to the true meaning of any part of the Contract Documents, the bidder may submit to the District a written request for an interpretation thereof. Any interpretation of the Contract Documents will be made only by an addendum duly issued.

e. Sales Tax

The bidders shall note the policy regarding sales tax as stated in the Proposal Form.

f. Requirements for Signing Bids

1. Bids which are not signed by individuals making them shall have attached thereto a power of attorney with authority to sign the bid in the name of the person for whom it is signed.

2. Bids which are signed for a partnership shall be signed by all of the partners or by an attorney-in-fact. If signed by an attorney-in-fact, there shall be attached to the bid a power of attorney extending authority to sign the bid executed by the partners.

3. Bids signed for a corporation shall have the correct corporate name thereon and the signature of the president or other authorized officer of the corporation manually written below the corporate name.

   Any bid manually signed by an official other than the president of the corporation shall have attached to it a certified copy of a resolution of the Board of Directors directing authority of such official to sign the bid and bearing the attesting signature of the secretary of the corporation. The impression of the corporate seal shall be placed on the bid. If the corporation does not have a seal, a statement to that effect shall appear following the corporate name.

g. Balanced Bid Requirement

Bidders shall make an effort to correctly proportion their actual costs and profit margins with bid items. Proposals should have unit prices for items which are proportionate to one another and all bid items should have corresponding unit prices. If the District determines that a proposal is significantly unbalanced and as such presents undue risk, the District reserves the right to reject any such bids as non-responsive.

2. PREQUALIFICATION OF BIDDERS

The requirements for prequalification of Bidders are as stated in the Advertisement.

3. PRE-BID CONFERENCE

A pre-bid conference is not required. Bidders are encouraged to schedule a time to review the site prior to bidding.

4. BID GUARANTEE

No proposal will be accepted unless accompanied by a certified check or bid bond equal to at least five percent (5%) of the amount proposed, payable to the District, as guarantee that if the Proposal is accepted, the bidder will execute and file the proper Contract within ten (10) calendar days after award of the Contract. Certified checks will be returned to bidders upon proper execution of the Contract. If the successful bidder shall fail to execute and file the Contract within ten (10) calendar days after the award of the Contract, the certified check or bid bond shall be forfeited to the District as liquidated damages.

5. DELIVERY OF BIDS

Each bid shall be placed, together with the bid guarantee, in a sealed envelope and endorsed as stated in the Advertisement. Proposals will be received until the hour and date set for the opening thereof and must be by that time in the possession of the Madison Metropolitan Sewerage District.

6. WITHDRAWAL OF BIDS

A bidder may withdraw his proposal, providing such a written request is in the hands of the District by the time set for opening proposals. When such a proposal is reached, it will be returned unopened to the bidder. No proposal shall be withdrawn after the opening of proposals for a period of thirty (30) calendar days after the scheduled time of receiving proposals without the consent of the District.

7. AWARD OF CONTRACT

Within twenty (20) calendar days after the opening of proposals, the Owner will accept one of the Proposals or will act in accordance with “Basis of Award,” as stated herein. The acceptance of the Proposal will be by written Notice of Award, mailed or delivered to the office designated in the Proposal. If the bidder whose Proposal is accepted should fail to execute the proper Contract within the time allowed in “Execution of Contract,” the Owner may award the Contract to another bidder in accordance with the “Basis of Award”; and the certified check or bid bond of the first-mentioned bidder shall be forfeited.

8. BASIS OF AWARD

The District reserves the right to reject any or all proposals or to waive any irregularities in any proposal or to accept any proposal which will be in the best interests of the District.

The District also reserves the unrestricted privilege to reject any unit prices for additions to or deductions from the scheduled amount of work as given in the proposals, if the same are considered excessive or unreasonable, or to accept any or all of such unit prices which may be considered fair or reasonable.

Before award of any Contract can be approved, the District shall be satisfied that the bidder involved:

a.) maintains a permanent place of business.
b.) has adequate plant and equipment to do the work properly and expeditiously,
c.) has a suitable financial status to meet obligations incident to the work,
d.) has appropriate technical experience, and
e.) has a satisfactory performance record.

The award, if made, will be made to the responsive, responsible bidder.

9. EXECUTION OF CONTRACT

Within ten (10) calendar days after receiving the Notice of Award, the successful Bidder shall sign the Contract hereto attached, and submit to the District acceptable certificates of insurance required under the Contract Documents. Within fifteen (15) calendar days after receiving the signed Contract from the successful bidder, the Owner's authorized agent will sign the Contract. Three executed counterparts of the Contract and certificates of insurance will be required.

10. PERFORMANCE AND PAYMENT BONDS

Not Required

11. EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS

a) In connection with the performance of Work under this Contract, Contractor agrees not to discriminate against any employee or applicant for employment because of age, race, religion, color, handicap, sex, physical condition, national origin or developmental disability as defined in Wisconsin Statutes. This provision shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for

training, including apprenticeship. Contractor further agrees to take affirmative action to ensure equal employment opportunities for persons with disabilities. Contractor agrees to post in conspicuous places, available for employees and applicants for employment, notices setting forth the provisions of the nondiscrimination clause, a copy of which is included in the Contract Documents.

12. OTHER PROVISIONS

a) The Contract letting shall be subject to the applicable provisions of the Wisconsin Statutes, Section 66.0901.

Madison Metropolitan Sewerage District

# PRE-QUALIFICATION APPLICATION

THE CONTENTS OF THIS QUESTIONNAIRE SHALL BE CONFIDENTIAL FOR THE EXCLUSIVE USE OF THE CONTRACTING AGENCY AND SHALL NOT BE MADE PUBLIC EXCEPT BY WRITTEN PERMISSION OF THE PROSPECTIVE BIDDER.

## INFORMATION / INSTRUCTIONS

1) To be submitted by all prime bidders. All others to submit as required by the bidding documents.

2) Must be received by The District prior to deadline stated in bidding documents. Additional information, if necessary, may be requested by the District.

3) Fill out and send questionnaire (IN PDF FORMAT) to: **Prequalifications@madsewer.org**

4) Bidder's Statement of Request for Pre-Qualification **(Green Sheet)** must be filled out for every project.

5) Statement of Qualifications **(Blue Sheets)** are valid for the current calendar year only.
*(EXAMPLE: project bid in June, statement of qualifications valid until 12/31)*

6) Submission of the Blue Sheets section of the application does not grant automatic approval for all projects advertised by the District in the current calendar year. Qualifications are still reviewed project to project by project engineer.

## PREQUALIFICATION STATEMENT

There is submitted herewith for your consideration, pursuant to Section 66.0901(2), Wisconsin Statutes, a statement of qualifications of the undersigned to furnish the necessary labor, materials, and skills required to enter upon and complete contracts for Madison Metropolitan Sewerage District.

# ***BIDDER'S STATEMENT OF REQUEST FOR PRE-QUALIFICATION***

## IDENTIFICATION

1. Firm's Name:_____

Mailing Address: _____

_____

Telephone: _____

E-Mail: _____

Number of years in business under present name: _____

Is the business a: ◯ Corporation (includes LLC and S) ◯ Partnership ◯ Individual Owner

If a Corporation: Year incorporated: _____ State incorporated: _____

Contact information regarding questions related to this form:

Name: _____

Telephone Number: _____

Email Address: _____

2. The above-named Bidder requests to be pre-qualified for construction of the following project/contract:

2025 Electrical Equipment Maintenance Testing

Which do you wish to qualify as (select all that apply): ☐ Prime Contractor ☐ Subcontractor

Please specify trade(s) : _____

◯ Bidder **HAS NOT** submitted a Statement of Qualifications within the current calendar year. Documentation is required. Proceed to following page, complete forms and attach documentation.

◯ Bidder **HAS** submitted a Statement of Qualifications within the current calendar year. A new Statement of Qualifications is not required. Bidder acknowledges his/her intent to be pre-qualified for the above-named project(s) by signing and dating this form below and by returning this form to the District prior to the deadline stated in the bidding documents.

_____
Firm Name

_____
Signature

_____
Title

_____
Date

# ***BIDDER'S STATEMENT OF QUALIFICATIONS***

## EXPERIENCE

### I - PERSONNEL

What is the experience of the principal individuals, including officers, superintendents and/or foremen/women, of your organization? Provide information similar to the table below:

| Name | Present Position/Title | Years of Experience | Description of Duties |
|---|---|---|---|
| (1) | (3) | (3) | (4) |

Average number of employees during the last 12 months:

Office: _____ Skilled: _____ Unskilled: _____

### II - PROJECTS COMPLETED

Provide a list of work performed on any projects pertinent to the type of work for which pre-qualification is desired. Provide information similar to the table below. Under "Capacity", state whether the work was as a Prime Contractor, Subcontractor, etc.

| Year Finished | Project Name | Type of Work | Capacity | Contract Amount ($) | Reference Name | Reference City, State | Reference Phone # | Reference Email |
|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |

### III - CURRENT CONTRACTS

Attach information related to current contracts. Highlight contracts that are for work similar to the type of work for which pre-qualification is desired. Provide information similar to the table below:

| Project Name | Owner | % Complete | Contract Amount ($) | Completion Date | Type of Work | Reference Name | Reference City, State | Reference Phone # | Reference Email |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |

### IV - EQUIPMENT

Provide a list of major pieces of equipment owned and available when needed for proposed work. Provide information similar to the table below:

| No. of Each | Description | Model/Size | Capacity | Year |
|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) |

## CONTRACTUAL RESPONSIBILITY

Answering "yes" to any of the following questions may not directly disqualify a company from becoming approved to bid by the District. However, *failure to answer truthfully* will likely result in disqualification.

If response is "Yes", please attach a description of particulars (date, parties involved, type of work, amount of contract, cause, resolution).

**1)** Has your firm or any officer or partner of your firm ever been debarred, suspended, disapproved, or not pre-qualified by the State of Wisconsin or any government entity in the past ten (10) years?

◯ **Yes** ◯ **No**

**2)** Has your firm or any officer or partner of your firm had any type of business, contracting, or trade license, certification, or registration revoked or suspended in the past ten (10) years?

◯ **Yes** ◯ **No**

**3)** Does your firm or any officer or partner of your firm have an open or ongoing investigation or been cited in a violation of federal, state, or local government safety or environmental laws? This includes, but is not limited to, any OSHA, EPA, or WDNR violations.

◯ **Yes** ◯ **No**

If Yes, include in description the OSHA reportable incidents and citations.

**4)** Has your firm or any officer or partner of your firm ever declared bankruptcy while performing work on a contract or work awarded to it in the past ten (10) years?

◯ **Yes** ◯ **No**

**5)** Has your firm ever defaulted on or failed to complete any contract or work awarded to it in the past ten (10) years?

◯ **Yes** ◯ **No**

**6)** Has your firm or any officer or partner of your firm asked to be relieved from a bid submitted by it to a public awarding authority in the past ten (10) years?

◯ **Yes** ◯ **No**

**7)** Has your firm or any officer or partner of your firm ever been charged with or convicted of a violation of any Davis Bacon federal wage rates?

◯ **Yes** ◯ **No**

**8)** Has your firm; any of its owners; a subsidiary or corporate parent; or any officer, director, or partner thereof, been convicted of violating Section 133.03 Wisconsin Statutes (Unlawful Contracts: Conspiracies) in the last ten (10) years?

◯ **Yes** ◯ **No**

## COMMITMENT TO SAFETY

A safe work environment is always the top priority of the District, and this priority extends to all contractors and subcontractors on work of any capacity. **Please attach a description of your company's commitment to safety** (including but not limited to safety programs, safety personnel, and leadership commitment)

## BONDING RESPONSIBILITY

**Current Bonding Company**

Bonding Company Name:_____

Mailing Address: _____

_____

Telephone: _____ E-Mail: _____

Firm's current performance and payment bond limit for a single job: _____

Firm's current performance and payment bond limit for aggregate jobs: _____

## CONTRACTOR'S FINANCIAL STATEMENT

1) Attach a bank letter, no later than the previous calendar year, indicating credit available.

2) Attach a dated, recent financial statement, no later than the previous calendar year, showing breakdown of your firm's assets, liabilities, and net worth.

**AFFIDAVIT**

I certify that all above statements and attachments hereto are true and correct and are made on behalf of

_____
Firm Name

_____
Officer/Owner Name

_____
Signature

_____
Title

Sworn and Subscribed to before me this _____ day of _____, 20___.

_____ Notary Public.

My commission expires _____.

**PROPOSAL FOR**
**MADISON METROPOLITAN SEWERAGE DISTRICT**
**2025 ELECTRICAL EQUIPMENT MAINTENANCE TESTING PROJECT**

NOTE: Use Black Ink Or Typewriter For Completing This Bid Form

## PROJECT: 2025 Electrical Equipment Maintenance Testing Project

THIS BID IS SUBMITTED TO: Madison Metropolitan Sewerage District
1610 Moorland Road
Madison, Wisconsin 53713

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with Owner in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.

2. Bidder accepts all of the terms and conditions of the Advertisement for Bids and the Request for Proposals. This Bid will remain subject to acceptance for the period of time specified in the Advertisement for Bids after the day of Bid opening. Bidder will sign and submit the Agreement with other documents required by the Bidding Requirements within 10 days after the date of Owner's Notice of Award.

3. In submitting this Bid, Bidder represents, as more fully set forth in the Agreement, that:

   (a) Bidder has examined copies of all the Bidding Documents and of the following Addenda, receipt of all which is hereby acknowledged:

| Addenda Number | Date |
|---|---|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

   (b) Bidder has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

   (c) Bidder has given Engineer written notice of all conflicts, errors or discrepancies that it has discovered in the Contract Documents and the written resolution thereof by Engineer is acceptable to Bidder.

4. Bidder will complete the Work for the following prices:

**Item and Description**

1. To perform the 2025 electrical equipment maintenance testing, and all other associated work for:

**TOTAL $ _____**

(Contractor's Seal)

Signature: _____

Printed Name of Signer: _____

Title: _____

5. Bidder agrees that the Work will be substantially completed as specified in Request for Proposal.

6. Bidder acknowledges this project is exempt from State of Wisconsin sales and use taxes.

7. Bidder agrees that the Work will be performed per attached Bid Worksheet

8. Communications concerning this Bid shall be addressed to:

Name: _____

Company Name: _____

Address: _____

_____

_____

Telephone No.: _____

SUBMITTED ON _____, 20_____

**Bid Worksheet**
**Substations and Pumping Stations Maintenance**

Owner has checked bid items under the Bid Required column that require testing and evaluation. No bids are required for items that are not checked under the Bid Required column. Contractor shall submit a bid price for each item that is checked under the Bid required column.

For details on items that require maintenance and testing see the Request for Bid Project Requirements Section.

| Bid Item | Item Description | Bid Required | Bid Price |
|---|---|---|---|
| 1 | "Miscellaneous Contractor Costs" not covered in the unit price bid units – (attach detailed breakdown) | X | $ |
| 2 | Switchgear Panel H1-1 maintenance | | $ |
| 3 | Switchgear Panel H1-2 maintenance | | $ |
| 4 | Main Switchgear S1 maintenance | | $ |
| 5 | Unit Sub U1 maintenance | X | $ |
| 6 | Unit Sub U2 maintenance | X | $ |
| 7 | Unit Sub U3 maintenance | X | $ |
| 8 | Unit Sub U6 maintenance | X | $ |
| 9 | Unit Sub U14 maintenance | X | $ |
| 10 | Unit Sub U15 maintenance | X | $ |
| 11 | Med. Volt. Panel M51 maintenance | X | $ |
| 12 | Med. Volt. Panel M71 maintenance | X | $ |
| 13 | Switchgear Panel 582 maintenance | X | $ |
| 14 | Pumping Station No. 1 maintenance | X | $ |
| 15 | Pumping Station No. 2 maintenance | X | $ |
| 16 | Pumping Station No. 3 maintenance | X | $ |
| 17 | Pumping Station No. 4 maintenance | | $ |
| 18 | Pumping Station No. 5 maintenance | X | $ |
| 19 | Pumping Station No. 6 maintenance | X | $ |
| 20 | Pumping Station No. 7 maintenance | X | $ |
| 21 | Pumping Station No. 8 maintenance | X | $ |
| 22 | Pumping Station No. 9 maintenance | X | $ |
| 23 | Pumping Station No. 10 maintenance | X | $ |
| 24 | Pumping Station No. 11 maintenance | X | $ |
| 25 | Pumping Station No. 12 maintenance | X | $ |
| 26 | Pumping Station No. 13 maintenance | X | $ |
| 27 | Pumping Station No. 14 maintenance | X | $ |
| 28 | Pumping Station No. 15 maintenance | X | $ |
| 29 | Pumping Station No. 16 maintenance | X | $ |
| 30 | Pumping Station No. 17 maintenance | | $ |
| 31 | Pumping Station No. 18 maintenance | X | $ |
| | **Total Maintenance Bid:** | | $ |

**CONTRACT FOR**
**MADISON METROPOLITAN SEWERAGE DISTRICT**
**2025 ELECTRICAL EQUIPMENT MAINTENANCE TESTING PROJECT**

THIS CONTRACT, made this _____ day of _____, 20_____
between _____
hereinafter called the CONTRACTOR, and the Madison Metropolitan Sewerage District ,
hereinafter called the OWNER or the District.
WITNESSETH: That the Contractor and the Owner for the consideration stated herein agree as follows:

ARTICLE I, SCOPE OF WORK:

The contractor shall provide and furnish all labor, materials, equipment, tools, power, utilities, transportation, and all other items and services necessary to perform and complete in a workman like manner the **2025 Electrical Equipment Maintenance Testing Project**, for the Madison Metropolitan Sewerage District, all in accordance with the Contract Documents herein mentioned, including any and all Addenda prepared by the Madison Metropolitan Sewerage District, which Contract Documents are made a part of this Contract; and the contractor shall do all other things required of the Contractor by said Contract Documents.

ARTICLE II, CONTRACT PRICE:

The Owner shall pay to the contractor for the performance of this Contract in U.S. dollars, the amount of _____Dollars
and _____Cents, (_____),
the said amount being computed from the Contractor's prices stated in the Proposal. Payments are to be made to the Contractor in accordance with and subject to the provisions embodied in the Contract Documents.

ARTICLE III, CONTRACT DOCUMENTS:

This Contract consists of the following Contract Documents, all of which are as fully a part of this Contract as if herein set out verbatim, or if not attached, as if hereto attached.

1. Addenda No.___ to ___ inclusive
2. Advertisement
3. Request for Proposal
4. Contractor's Proposal
5. General Conditions
6. Supplementary Conditions
7. This Instrument

In the event that any provision in any of the above component parts of this Contract conflicts with any provision in any other of the component parts, the provision in the component part first enumerated above shall govern over any other component part which follows it numerically, except as may be otherwise specifically stated.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed in three (3) original counterparts this day and year first above written.

(Contractor's Seal)

_____
(Contractor)

Attest _____ By _____

Title _____ Title _____

(Owner's Seal)

Madison Metropolitan Sewerage District
(Owner)

Attest _____ By _____

Title _____ Title _____

# GENERAL CONDITIONS

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## GENERAL CONDITIONS

## PART 1: DEFINITIONS AND TERMINOLOGY

1.01 Defined Terms

A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. 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, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
3. Application for Payment—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
4. Bid—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
5. Bidder—An individual or entity that submits a Bid to Owner.
6. Bidding Documents—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
7. Bidding Requirements—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
8. Change Order—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
9. Change Proposal—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
10. Claim—A demand or assertion by Owner or Contractor 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. Commission—The Commission of the Madison Metropolitan Sewerage District.
12. Constituent of Concern—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

13. Consulting Engineer—Consulting Engineer is identified in Article 3 of the Agreement. The Consulting Engineer duties shall be in accordance with Article 3 of the Agreement. The Consulting Engineer is not the Engineer as defined in these documents.
14. Contract—The entire and integrated written contract between Owner and Contractor concerning the Work.
15. Contract Documents—Those items so designated in the Agreement, and which together comprise the Contract.
16. Contract Price—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
17. Contract Times—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
18. Contractor—The individual or entity with which Owner has contracted for performance of the Work.
19. Contractor's Guarantee—The terms of the guarantee set forth in Section 315.
20. District—Madison Metropolitan Sewerage District
21. Drawings—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
22. Effective Date of the Contract—The date, indicated in the Agreement, on which the Contract becomes effective.
23. Electronic Document—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
24. Electronic Means—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.
25. Engineer— The District Principal Engineer of the Madison Metropolitan Sewerage District, including authorized representatives of the District Principal Engineer as further defined in Article 3 of the Agreement. Whenever the word Architect or Architect/Engineer is used in the Specifications, it shall have the same meaning as the word Engineer.
26. Field Order—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
27. General Requirements—Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications
28. Hazardous Environmental Condition—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
    a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
    b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.
    c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.

29. Laws and Regulations; Laws or Regulations—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
30. Liens—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
31. Milestone—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.

32. Notice—Wherever the Contract Documents refer to the giving of any notice to the Owner, Contractor, or Surety, such notice shall be deemed to have been given when written notice has been delivered to, delivered by Electronic Means, or placed in the United States mails addressed to, the authorized representative of the respective Owner, Contractor, or Surety at the permanent place of business or, in the case of notice to the Contractor, at the site of the project.
33. Notice of Award—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
34. Notice to Proceed—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
35. Order—Wherever under the provisions of the Contract an order to the Contractor from the Engineer or Owner is required, such order shall be understood to mean a written order addressed to the Contractor and signed by the Engineer or a duly authorized representative of the Owner.
36. Owner— Madison Metropolitan Sewerage District, 1610 Moorland Road, Madison, WI 53713
37. Progress Schedule—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.
38. Project—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
39. Proposal— Contractor's Proposal, submitted to Owner in response to a Request for Proposal, and included as part of the Contract Documents.
40. Records— Any and all documents and records created by the Contractor for the benefit of the Owner, relating to the Work. Records include but are not limited to plans, drawings, specifications, shop drawings, tests, inspections and related reports.
41. Resident Project Representative—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.
42. Samples—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
43. Schedule of Submittals—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals.
44. Schedule of Values—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.
45. Shop Drawings—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
46. Site—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.

47. Specifications—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
48. Subcontractor—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
49. Submittal—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers' instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents.
    Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.
50. Substantial Completion—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion of such Work.
51. Successful Bidder—The Bidder to which the Owner makes an award of contract.
52. Supplementary Conditions—The part of the Contract that amends or supplements these General Conditions.
53. Supplier—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
54. Surety—Any person, firm, or corporation that has executed, as Surety, the Contractor's Performance or Payment Bonds securing the within Contract.
55. Technical Data
    a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.
    b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.
    c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.
56. Underground Facilities—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit,

distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.

57. Unit Price Work—Work to be paid for on the basis of unit prices.
58. Work—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
59. Work Change Directive—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. Intent of Certain Terms or Adjectives: 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 Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the 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 is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 406 or any other provision of the Contract Documents.

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

D. Defective: The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

1.does not conform to the Contract Documents;

2.does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

3.has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).

E. Furnish, Install, Perform, Provide

1. The word "furnish," when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word “install,” when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

F. Contract Price or Contract Times: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.

G. 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.

## PART 2: INSURANCE, BONDS, AND LEGAL MATTERS

201. CONTRACTOR'S INSURANCE

The Contractor shall not commence work under this Contract, and shall not allow any subcontractors to commence work, until all the insurance required hereunder has been obtained and such insurance certification has been reviewed by the Owner. Review of the insurance certification by the Owner shall not relieve or decrease the liability of the Contractor hereunder. The insurance certification shall name as Additional Insureds the Madison Metropolitan Sewerage District, its Consulting Engineer, if any, and others as set forth in the Supplementary Conditions. Contractor shall provide updated certification as required until at least final acceptance. Contractor shall ensure that all insurance coverages remain in full force continuously from the commencement of work until final acceptance and during any correction periods without lapse.

The Contractor shall obtain, pay for, and maintain such Worker's Compensation and Employer's Liability, Comprehensive General Liability, Business Automobile Liability, Umbrella Liability Insurance, and such other insurances that Owner may determine is necessary, to protect the Contractor performing work covered by this Contract from claims for damages for bodily injury, including accidental death, as well as for claims for property damage which may arise from operations under this Contract whether such operations be by Contractor itself or any Subcontractor, or by anyone directly or indirectly employed by either of them, on the forms, and with limits not less than those set forth in the Supplementary Conditions. The policies of insurance required remain in effect, at least until final acceptance, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.

All policies shall be underwritten by insurer(s) with minimum A.M. Best Ratings of A-VII. Each policy of insurance shall provide that it will not be canceled by the insurance company or the Contractor, except upon thirty (30) days' written notice to Owner, such notice to be delivered by registered mail to the representative named in the Notice section of this Contract. The certificates of insurance and endorsements shall be delivered to Owner upon execution of the Contract but in no event later than fifteen (15) days prior to commencement of the Work. In addition, all insurance maintained by the Contractor, including any excess or umbrella policy(ies), shall be primary with respect to the interest of Owner, with any other insurance maintained by Owner being excess and not contributory with the Contractor's insurance. Upon Owner’s request, the Contractor shall provide Owner with the full policies of insurance for the insurance required by this Contract, and copies of any new or renewed policies of insurance issued pursuant to this paragraph shall be provided to Owner within fifteen (15) days of their issuance.

Failure on the part of the Owner to receive a copy of the insurance policy(ies), certificate(s) of insurance, or endorsements from the Contractor does not preclude the Contractor from satisfying this contractual provision.

The Contractor agrees that any dispute that arises between the Contractor and the insuring agent or insurance company regarding coverage relating to the Work shall be a dispute solely between the Contractor and the insuring agent or insurance company and should be resolved by the

Contractor and the insuring agent or insurance company. All costs and legal fees arising from such disputes will be borne solely by the Contractor. The Contractor agrees that any dispute and associated costs, including attorneys' fees, regarding insurance coverage pursuant to the terms of this Contract will be the sole responsibility of the Contractor. Any damage to property, personal injury, or other injury or damage for which the Contractor is responsible to indemnify the Owner shall not be affected by the coverage or lack of coverage by any insurance obtained by the Contractor.

In the event the Contractor fails to obtain such insurance prior to the commencement of the Work or in the event of cancellation of such insurance for any reason, either by the Contractor or by the insurance company, the Owner may negotiate and purchase such insurance in the amounts and within the limits provided for herein and charge all costs and expenses in obtaining such insurance against the principal amount due under this Contract. The Contractor agrees to reimburse the Owner for the same within five (5) days after being furnished with a statement thereof.

All insurances required herein, pursuant to the specific requirements of the Supplementary Conditions, are the minimum types and amounts required for compliance with this Contract and shall not be construed as the full amount and types of insurance necessary to adequately protect the Contractor or its subcontractors nor its full and complete obligations to the Owner as provided for in this Contract or otherwise, and the Contractor shall be solely responsible for any deficiencies thereof. It is the Contractor's sole obligation to determine and implement any other types or additional amounts of insurance necessary to protect the Contractor's obligations and interests. The types and amounts of any insurance required herein shall not serve to limit the total liability of the Contractor under the Contractor's Guarantee, or any warranty or indemnity provision of this Contract or any other obligation the Contractor may have to the Owner or others.

202. OWNER'S INSURANCE

The Owner, at its option, may maintain such insurance as will protect it from liability for injuries to persons or damage to property which may arise from operations under this Contract. Any such insurance maintained by Owner shall be excess and not contributory with the Contractor's insurance.

203. PERFORMANCE AND PAYMENT BONDS

The Contractor shall furnish a Performance Bond and a Payment Bond each in an amount at least equal to 100% of the Contract price, as security for the faithful performance of this Contract and for the payment of all persons performing labor and furnishing materials in connection with this Contract, including without limitations because of specific enumeration therein all of the items mentioned in Section 779.14 (1m)(e) Wisconsin Statutes. The Performance Bond and the Payment Bond shall each run for the life of the Contract including any guarantee or warranty periods.
The Owner may, in the Owner's sole discretion, waive requirement for a Performance Bond and Payment Bond as provided by Supplementary Conditions.

The form of the Performance Bond and the Payment Bond shall be EJCDC® C 610, Performance Bond (2010, 2013, or 2018 edition) and EJCDC® C 615, Payment Bond (2010, 2013, or 2018 edition).

The surety on the bonds shall be licensed to underwrite contracts in the State of Wisconsin, and a certificate to that effect shall be attached to the bond. If the principal is an individual, full name and residence of the individual shall be inserted in the body thereof; and the individual shall sign the bond with their usual signature on the line opposite the scroll seal. If the principals are partners, their individual names shall appear in the body of the bond with the recital that they are partners comprising a firm and naming it; and all members of the firm shall execute the bond as individuals. The signature of a witness shall appear in the appropriate place, attesting to the signature of each individual party to the bond. If the principal is a corporation, the name of the State in which incorporated shall be inserted in the appropriate place in the body of the bond; and said instrument shall be executed and attested under the corporate seal as indicated on the form. If the corporation has no corporate seal, the fact shall be stated, in which case a scroll or adhesive seal shall appear following the corporate name. This also applies to execution by surety.

A power of attorney, authorizing the execution of the bond by an attorney-in-fact or agent, shall be attached to one executed counterpart of the bond. If the bond is executed by an out-of-state agent, it shall be countersigned by a licensed resident agent of Wisconsin; and evidence of his being so licensed shall be furnished.

Every bond must run to the Madison Metropolitan Sewerage District. The date of the bond must not be prior to the date of the Contract for which it is given.

## 204. COMPLIANCE WITH LAWS

The Contractor shall, at all times, comply with all laws, ordinances, rules, and regulations applicable to the Work and/or remedies thereto performed by the Contractor, including the production, transport, delivery, installation, correction, repairs, and/or re-performance of the Work or any portion thereof. The Contractor shall indemnify, defend, and save harmless the Owner and all of its officers and employees against any claim or liability arising from or based on the violation of any such law, ordinance, rule, or regulation, whether by the Contractor or the Contractor's employees, Subcontractors, or agents. The Contractor shall comply with the Wisconsin Unemployment Compensation Act and Title Eight of the Social Security Act.

## 205. ROYALTIES AND PATENTS

The Contractor shall pay for all royalties and patents relating to the Work, shall defend all suits or claims for infringement on any patent right, and shall save the Owner harmless from loss on account thereof.

## 206. INDEMNIFICATION

a) General Indemnity. The Contractor shall indemnify, defend and save harmless the Owner and all of its officers, employees, consultants and agents (“Indemnified Parties”) against any claim, liability, loss, damage, expense, cost and attorneys’ fees arising from or based on, in whole or in part, any negligent act or omission by the Contractor or the Contractor’s employees, subcontractors or agents, whether negligent or not. In the event one or more of the Indemnified Parties is made a party to any suit or litigation (whether or not the Indemnified Parties are the only parties alleged to be negligent) because of injury or damage or alleged injury or damage to person, life, or property or injury or alleged injury resulting in the death of any person or persons arising out of or in connection with the performance of the Work or progress of the Work to be done under

the Contract Documents, the Contractor shall defend such action on behalf of the Indemnified Party or Parties by counsel chosen by the applicable Indemnified Party or Parties being defended and shall pay all damages, costs, expenses, and reasonable attorneys' fees incurred in connection with such defense. If judgment shall be obtained or claim allowed in any of such proceedings against any of the Indemnified Parties or a settlement is reached, the Contractor shall pay and satisfy such judgment, claim, or settlement, except the portion thereof that shall be determined or mutually agreed to be caused solely by the negligence of one or more of the Indemnified Parties. In the event it is determined after final disposition of any action arising as a result of any acts indemnified that the acts complained of were the result of the sole negligence on the part of the Owner or its officers, agents, employees, or board of directors, the Owner shall still, in that event, be entitled to indemnity from the Contractor for the cost of defense, including reasonable attorneys' fees.

b) Additional Indemnity. The Contractor also agrees to indemnify and hold harmless the Indemnified Parties from and against all claims, damages, losses, forfeitures, penalties, and expenses, including but not limited to attorneys' fees and court costs arising out of or resulting from:

i. The negligent or otherwise wrongful acts or omissions of the Contractor or the Contractor's subcontractors, suppliers, laborers, workers, mechanics, materialmen, and furnishers of machinery and parts thereof; equipment; power tools; and all supplies incurred in the furnishing or performance of the Work, including any person directly or indirectly employed by any of them or any person for whose acts any of them may be liable during the furnishing or performance of the Work or any curative action under the Contractor’s Guarantee under this Contract following furnishing or performance of the Work.

ii. Claims growing out of demands of the Contractor's subcontractors, including without limitation all expenses and attorneys' fees incurred by any Indemnified Party in discharging any liens or similar encumbrances.

iii. All claims, demands, fines, or causes of action by any regulatory body or governmental agency arising out of any violation for the Contractor or its subcontractors' failure to have appropriate authority to furnish or perform the Work.

iv. All claims, fines, damages, losses, or causes of action in any way related to hazardous or toxic substances, wastes, materials, pollutants, or contaminants (as such terms may be defined under any federal or state law pertaining to health, safety, or protection of the environment) that the Contractor or its employees, subcontractors, or sub-suppliers bring onto the location of the Work and all damages or claims of whatever nature arising from environmental violations and citations due to noncompliance with environmental permits, laws, statutes, ordinances, orders, rules, and regulations.

207. NO DISCRIMINATION

The Contractor will not discriminate against any employee or applicant for employment in violation of any applicable federal, state, or local law, statute, regulation, or ordinance. The Contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their sex, race, color, creed, age, sexual-orientation, gender identity, disability or national origin. Additionally, the Contractor will comply with all applicable laws, regulations, and rules of government agencies relating to equal employment, civil rights, nondiscrimination, and immigration.

208. INDEMNITY AGAINST LIABILITY UNDER THE FAIR LABOR STANDARS ACTS, SOCIAL SECURITY ACTS, AND UNEMPLOYMENT COMPENSATION ACTS.

The Contractor shall comply with all applicable fair labor standards acts, unemployment compensation acts, and federal social security acts in all respects, including the preparation of reports and records required thereunder. The Contractor will indemnify and save the Owner harmless from all claims and liabilities arising under applicable fair labor standards acts, unemployment compensation acts, and the federal social security acts.

## PART 3: SCOPE OF THE WORK

### 301. INTENT OF THE CONTRACT DOCUMENTS

The Contract Documents are complementary and what is called for by one shall be as binding as if called for by all. The intention of the Contract Documents is to include in the Contract price the cost of all labor and materials, water, fuel, tools, plant, equipment, power, light, transportation, and all other expenses, including unforeseen costs, as may be necessary for the proper execution of the Work. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.

Standard specifications and codes which are referenced in the Contract Documents shall be made a part of the Contract Documents by reference. The most recent revisions of such standard specifications or codes shall apply.

In any case of discrepancy in the Contract Documents, the matter shall be immediately submitted to the Engineer, who shall provide a written decision within 10 business days. The Contractor shall not proceed with any related Work until the discrepancy is resolved, except at its own sole risk and expense.

The Contractor agrees that it is an independent contractor and not an employee of the Owner and shall at all times be solely responsible for itself, as well as its employees, agents, and subcontractors, as to workmanship, accidents, injuries, wages, supervision, and control. The Contractor shall indemnify and hold the Owner harmless from any claims arising from the Contractor's failure to comply with these responsibilities.

The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.

Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will 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.

### 302. SAFETY, HEALTH, AND SANITATION

The Contractor shall comply with all Federal, State, and Local laws and codes governing safety, health, and sanitation; shall provide and maintain all safeguards, safety devices, and protective equipment; and shall take any other actions necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the Work covered by the Contract. Failure to comply with these requirements will be considered a breach of contract. Unless otherwise indicated in the Contract Documents, the Contractor shall provide and maintain acceptable portable toilets and other sanitary conveniences at the site of the Work.

The Contractor is specifically notified that wastewater treatment plants, pumping stations and sewer systems contain confined space work areas which may be susceptible to accumulation of hazardous gases or depletion of oxygen levels. The Contractor must familiarize itself with and

abide by all applicable state and federal regulations regarding confined space entry precautions and procedures. The Contractor shall familiarize itself with the proper use of gas detectors, breathing apparatus, tripods/harnesses, ventilation and all other measures as called for in the applicable state and federal regulations.

The Contractor is solely responsible for establishing and administering a safety program relating to the Work to meet any applicable Occupational Safety and Health Administration (OSHA), federal, state, and local safety laws, statutes, regulations, or requirements, including applicable Owner safety policies and procedures (collectively, "Safety Requirements") and is responsible for the safety of its employees and equipment. The Contractor will pay any citation issued for noncompliance of Safety Requirements arising from or related to the Work. The Contractor shall indemnify and hold the Owner and its employees, officers, directors, agents, and authorized representatives harmless from any damage or claims of whatever nature arising from safety violations and citations due to noncompliance with Safety Requirements.

Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as material safety data sheets) or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations. Failure to properly coordinate and communicate hazard information will be considered a breach of contract.

## 303. PROTECTION OF THE WORK

Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:

1. all persons on the Site or who may be affected by the Work;
2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

All damage, injury, or loss to any property referred to in this Article caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense, regardless of whether the damage was foreseeable or unforeseeable (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

Contractor 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; and shall erect and maintain all necessary safeguards for such safety and protection.

Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

These statements of specific duties on the part of the Contractor shall not be considered as a limitation of the general duties imposed by the Contract Documents.

In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued. Failure to act promptly in an emergency will be considered a breach of contract.

The Owner reserves the right to remedy any neglect on the part of the Contractor as regards protection of the Work after 24 hours' notice in writing, except in case of any emergency when the Owner shall have the right to remedy any neglect without notice and, in either case, to deduct the cost of such remedy from any money due or to become due to the Contractor.

304. PERMITS, LICENSES, AND NOTIFICATIONS

Unless otherwise indicated in the Contract Documents, or if the permitting agency will only grant required permits or licenses to the Owner, the Contractor shall obtain and pay for all permits and licenses. The Contractor shall comply with all provisions of required permits and licenses and shall give all notices which are necessary for the due and lawful prosecution of the Work. The Contractor shall furnish proof to the Owner that such permits and licenses have been obtained. The Contractor shall maintain such permits and licenses for the duration of the Contract.

305. USE OF THE SITE

Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. The Contractor shall honor any agreement between the Owner and third parties relating to use of real property.

Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other

adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.

Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall promptly remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

In case of a dispute, the Owner may remove the rubbish or surplus materials and charge the cost to the Contractor. Contractor shall promptly reimburse Owner for such costs.

The Contractor shall take special precautions, such as confining its operations to as small an area as possible, in order to minimize damage to crops, soils, and general vegetation on the Site.

Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

306. SUBSURFACE AND PHYSICAL CONDITIONS

A. The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the

Site (except Underground Facilities), that contain Technical Data; and
3. Technical Data contained in such reports and drawings.

B. Underground Facilities are shown or indicated on the Drawings, pursuant to Article 308, and not in the drawings referred to in Paragraph 306.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

C. Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data. as defined in Paragraph 1.01.A.55.b.

D. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;

3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or

4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

307. DIFFERING SUBSURFACE OR PHYSICAL CONDITIONS

A. If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Article 3.06 is materially inaccurate;
2. is of such a nature as to require a change in the Drawings or Specifications;
3. differs materially from that shown or indicated in the Contract Documents; or
4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement by Owner permitting Contractor to do so.

B. After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for

Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 3.07.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

C. After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

D. If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

E. Possible Price and Times Adjustments

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
    a. Such condition must fall within any one or more of the categories described in Paragraph 3.07.A;
    b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Article 311; and,
    c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 3.07.D and 3.07.E.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
    a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;
    b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
    c. Contractor failed to give the written notice required by Paragraph 3.07.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the

subsurface or physical condition in question.

F. Article 308 governs rights and responsibilities regarding the presence or location of Underground Facilities. Article 309 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Articles 306 and 307 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

308. UNDERGROUND FACILITIES

A. Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:

1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
2. complying with applicable state and local utility damage prevention Laws and Regulations;
3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.

B. If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency), notify Owner and Engineer in writing regarding such Underground Facility.

C. Engineer will, in his or her sole discretion:

1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

D. After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. If at any time Engineer determines, in his or her sole discretion, that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

F. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Article 311;

b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 308.D and 308.E; and

c. Contractor gave the notice required in Paragraph 308.B.

If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, or (b) obtained from available records. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 308.F.

## 309. HAZARDOUS ENVIRONMENTAL CONDITIONS AT SITE

A. The Supplementary Conditions identify:

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;
2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
3. Technical Data contained in such reports and drawings.

B. Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and

procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.

D. Contractor shall be 100% responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency ); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are reasonably necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 309.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.

G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions Articles 312 and 507.

H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 312. Owner may have such deleted portion of the Work performed by Owner's own forces or

others in accordance with Articles 310 and 414.

I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Consulting Engineer, and the officers, directors, members, partners, employees, agents, consultants, 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, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 309.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 309.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligent act or omission.

J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, 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 failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 309.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

K. The provisions of Articles 306, 307, and 308 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

## 310. OTHER CONTRACTS

The Owner may undertake additional work at the job site through other contractors or through the Owner's employees. The Contractor shall cooperate fully with such other contractors and employees and shall carefully fit its own Work to that provided by others. The Contractor shall not commit or permit any act which will interfere with the performance of work by any other contractor or employee.

## 311. CUTTING AND PATCHING

The Contractor shall do all cutting, fitting, or patching of the Work that may be required to make its several parts fit together properly and fit it to receive or be received by work of other contractors shown upon or reasonably implied by the plans.

## 312. CHANGES IN THE WORK

The Contract may be amended or supplemented by a Change Order, or a Work Change Directive. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. Owner and Contractor shall execute appropriate Change Orders covering:

1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
3. Changes in the Work which are: (a) ordered by Owner, (b) required because of Owner's acceptance of defective Work or Owner's correction of defective Work, or (c) agreed to by the parties; and
4. Changes that embody the substance of any final and binding results resolving the impact of a Work Change Directive or Change Proposal; final adjustments resulting from allowances; final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.

If Owner or Contractor refuses to execute a Change Order that is required to be executed as specified above, it will be deemed to be of full force and effect, as if fully executed.

A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments.

Engineer may authorize minor changes in the Work if, in his or her sole discretion, the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a "No Cost" Work Change Directive and will be binding on Contractor, which shall perform the Work involved promptly. If Contractor believes that a "No Cost" Work Change Directive justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall promptly submit a Change Proposal.

Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work. The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

Without invalidating the Contract and without notice to any surety, Engineer may, at any time or from time to time, order additions, deletions, or revisions in the Work. All such additions, deductions, alterations, or revisions which are not already stated or reasonably implied under the Contract Documents, shall be designated as Changes in the Work. Such Changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if

any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency.

If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

Adjustments, if any, in the amounts to be paid to the Contractor due to Changes in the Work shall be determined on the basis of an agreed lump sum amount, an agreed unit price, or time-and-materials. For adjustments based on a lump sum amount, the Contractor shall submit supporting documentation acceptable to the Engineer showing how the lump sum amount was computed. The Contractor or Subcontractor who actually performs the Change in Work shall be allowed a maximum mark-up of 15% to the actual cost to do the Work. Any higher tier Subcontractors and the Contractor shall be allowed a maximum mark-up of 5% to the next lower tier Subcontractor. It is understood that these mark-ups constitute full compensation for overhead and profit and that additional costs or mark-ups for items such as bonds, insurance, administration, estimating, engineering, general conditions, vehicles, equipment, small tools, consumables, paperwork preparation, etc., will not be allowed. For credit Changes in Work, the total decrease in cost shall be the actual decrease in cost to the Contractor plus a 5% decrease for overhead and profit.

If any Change in the Work is such that an estimated Work item quantity stated in the Proposal is increased or decreased by 50 percent or less, the Contractor agrees that payment adjustments for such Change in the Work shall be computed in accordance with the original unit price given in the Proposal for that Work item. If, however, any Change in the Work is increased or decreased by more than 50 percent of such quantity, the Contractor agrees that payment adjustments for such Change in the Work shall be as re-negotiated by the Owner and Contractor.

For Changes in the Work to be paid for on the basis of time-and-materials, the Contractor shall be paid the costs of labor, materials, and equipment, all as defined below. The Contractor or Subcontractor who actually performs the Change in Work shall be allowed a maximum mark-up of 15% to the actual cost to do the Work. Any higher tier Subcontractors and the Contractor shall be allowed a maximum mark-up of 5% to the next lower tier Subcontractor. It is understood that these mark-ups constitute full compensation for overhead and profit and that additional costs or mark-ups for items such as bonds, insurance, administration, estimating, engineering, general conditions, vehicles, equipment, small tools consumables, paperwork preparation, etc., will not be allowed. For credit Changes in Work, the total decrease in cost shall be the actual decrease in cost to the Contractor plus a 5% decrease for overhead and profit. It is also understood that this mark-up shall constitute full compensation for overhead and profit and shall apply regardless of whether the labor, materials and equipment are furnished by the Contractor's own forces or by a subcontractor or supplier. The costs of labor, materials and equipment shall be determined as provided in the following paragraphs:

a. <u>Labor</u>

The cost of labor shall include the cost of all workers and supervisors devoting their exclusive attention to the work in question, whether they are employed directly by the Contractor or by a Subcontractor. Unless otherwise approved by the Engineer, in his or her sole discretion, the cost of labor shall be based on an hourly rate and shall be computed as the sum of the employee's basic hourly wage, fringe benefits (including health and welfare, pension, vacation, holiday pay, and training), worker's compensation insurance premiums, state and federal unemployment insurance contributions, social security taxes, property damage insurance premiums, and liability insurance premiums. A detailed breakdown of the hourly rates shall be submitted by the Contractor prior to starting the time-and-materials work and shall be subject to the Engineer's sole approval.

b. Materials

The cost of materials shall be the actual cost to the purchaser (whether Contractor or Subcontractor) of materials which are approved by the Engineer and which are actually used or incorporated into the work in question.

c. Equipment

The cost of equipment shall be computed on the basis of rental rates which are acceptable to the Engineer and which are no higher than those used by established distributors or equipment rental agencies in the local area of the work. Rental rates shall be understood to include the costs of fuel, oil, lubrication, supplies, attachments, depreciation, insurance and all repairs, maintenance and incidentals. Rental rates shall not include any markup for Contractor overhead and profit, since this is included in the markup as set forth above.

Rental rates shall be allowed only for equipment, the use of which is authorized by the Engineer and only for the period of time during which the equipment is actually required for the time-and-materials work in question. Equipment stand-by rates shall not be allowed. When equipment is transported, rental rates shall be allowed for the transporting vehicle only. Rental rates shall not be allowed for non-working days nor for time when the equipment is inoperable due to breakdowns. Rental rates shall not be allowed for small tools or any items of equipment having a replacement value of less than $200. If the Contractor and Engineer cannot agree on acceptable rental rates, the rates shall be in accordance with the following paragraphs.

For all Contractor-owned equipment used on the time-and-materials work, equipment rental rates contained in the Rental Rate Blue Book, published by Equipment Watch, will be used, unless otherwise provided, to compute the equipment rental rate. The rental rates in effect on April 1 of each year will be used for work throughout the season. Rental rates will not be adjusted to account for regional differences in cost. The equipment rental rate shall be the sum of the monthly or weekly rental rate expressed on an hourly basis and the hourly operating cost and will be determined as follows: The monthly rental rate will be divided by 176 to obtain the monthly-hourly rental rate and the weekly rental rate will be divided by 40 to obtain the weekly-hourly rental rate. The equipment rental rate for on-job equipment will be based on the monthly-hourly rental rate for all hours of operation. The equipment cost rate for equipment furnished only to accomplish time-and-materials Work will be based on the weekly-hourly rental rate for all hours of operation up to and including 88 hours and on the monthly-hourly rental rate for all hours of operation over 88 hours. The rate for any specialized equipment not listed in the Rental Rate Blue Book must be approved by the Engineer prior to use.

For equipment which is rented by the Contractor for time-and-materials work, the cost of equipment shall be the actual amount shown by invoice from the rental agent, or shall be computed in the manner described above for Contractor-owned equipment, whichever amount is less.

d. Exemptions

No additional allowance shall be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.

e. Records

The compensation as set forth above shall be received by the Contractor as payment in full for Work done on a time-and-materials basis. At the end of each day the Contractor's representative and the Engineer shall compare records of the cost of Work done on a time-and-materials basis.

f. Itemized Statements

No payment will be made for Work performed on a time-and-materials basis until the Contractor shall furnish to the Engineer duplicate itemized statements of the cost of such Work, detailed as to the following:

1. Name, classification, dates, daily hours, total hours, rate, and extension of each laborer and supervisor.
2. Designation, dates, daily hours, total hours, rental rate, and extension of each truck and other unit of machinery and equipment.
3. Quantities of materials, prices, and extensions.
4. Transportation of materials.
5. Such statements shall be accompanied and supported by original receipted invoices for all materials used, equipment rented, and transportation charges; provided that if materials used on the time-and-materials Work are not specifically purchased for such Work but are taken from the Contractor's stock, then in lieu of the original invoices the statements shall contain or be accompanied by an affidavit of the Contractor certifying that such materials were taken from stock, that the quantity claimed was actually used, and that the price and transportation claimed represents the actual cost to the Contractor.

No verbal order or suggestions given by an employee of the Owner shall be construed as authorizing or laying the basis for any claim on the part of the Contractor for extra compensation, either for work or materials or for damages because of the Contractor's compliance therewith. Such verbal orders and suggestions as to the performance of the Work may be freely given, but in case they appear to the Contractor to involve Changes in the Work, for which the Contractor should receive extra compensation, the Contractor shall obtain a written order from the Engineer for such Changes in the Work prior to performing the Work unless an emergency situation is determined to exist by the Engineer in his or her sole discretion. In case of a dispute as to what does or does not constitute Changes in the Work, a decision will be made by the Engineer in his or her sole discretion.

313. ALLOWANCES

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
B. Cash Allowances: Contractor agrees that:

1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.

C. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

314. UNIT PRICE WORK

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.
E. Adjustments in Unit Price

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
    a. the quantity of the item of Unit Price Work performed by Contractor differs by more than 50 percent of such quantity from the estimated quantity of such item indicated in the Agreement; and
    b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.

2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.

3. Adjusted unit prices will apply to all units of that item.

4. The Contractor shall provide, to the Engineer, satisfactory supporting documentation that justifies adjustments to unit prices.

315. CONTRACTOR'S GUARANTEE

Unless otherwise stated in the Contract Documents, the Contractor shall guarantee the Work performed under this Contract against defects in workmanship and materials for a period of one year from the date of final acceptance of the Work by the Commission. This guarantee shall cover all the Work and materials provided under the Contract, including that provided by any Subcontractors or manufacturers. If any defect should appear during the guarantee period, the Contractor shall promptly make required replacement or acceptable repairs of the defective Work at his own expense and shall pay for any damage to other Works resulting from such defects. This expense includes total and complete restoration of any disturbed surface to its original or better than original condition which existed before the repairs or replacement, regardless of improvements on lands where the repair or replacement is required.

The Performance Bond and Payment Bond shall remain in force during this guarantee period. The Contractor shall make all repairs and replacements promptly. If the Contractor fails to make the repairs and replacements promptly, the Owner may do the Work; and the Contractor and his Surety shall be liable for the cost thereof. The Contractor also agrees to hold the Owner and the Engineer harmless from liability of any kind arising from damage due to said defects in workmanship or materials.

This guarantee shall not preclude claims by the Owner beyond the one-year guarantee period for negligence or intentional acts by the Contractor arising out of or related to the Work.

316. PARTIAL OWNER OCCUPANCY

The Owner, at its sole discretion, may place into service certain portions of the completed work. The Contractor shall provide proper access to Owner's personnel for this purpose.

If the Owner places a certain portion of the work into service, and if the Owner becomes fully satisfied with the performance of that specific work, the Owner may, at Owner’s sole discretion, allow the Contractor’s guarantee period for that specific work to begin on a date earlier than the overall final acceptance date for the project. Unless the Owner specifically notifies the Contractor, in writing, of such an earlier guarantee date, the Contractor's Guarantee against defects in workmanship and materials for work which has been placed into service shall remain for one full year after the date on which the work receives final acceptance by the Commission.

## PART 4: CONTROL OF THE WORK

401. NOTICE TO PROCEED

The Contractor shall not begin the Work until written Notice to Proceed has been issued by the Owner. The Contractor shall abide by any special instructions which may be stated in the Notice to Proceed.

402. PRE-CONSTRUCTION SUBMITTALS

Before beginning the Work, the Contractor shall submit the following preconstruction submittals to the Engineer, for review and comment:

- Detailed construction schedule, in graphical chart form, showing the Contractor's proposed start and finish dates for all key construction tasks required on the project and that provides an orderly progression of the Work to completion within the Contract Times.

- Detailed Schedule of Submittals that provides a workable arrangement for reviewing and processing the required submittals before materials and products are ordered and in ample time to permit satisfactory progress of the Work.

- Detailed schedule of values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

- Copies of all building permits, dewatering permits, erosion control permits and any other construction related permits required by local, state or other bodies.

- Additional special preconstruction submittals as may be required in the specifications.

403. SUPERINTENDENCE

The Contractor shall have, at the site of the Work, at all times, a competent foreman, superintendent, or other representative with at least 10 years of relevant experience and certifications satisfactory to the Owner and having authority to act for the Contractor.

404. CONTRACTOR'S MEANS AND METHODS OF CONSTRUCTION

Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and Owner does not have any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services. Contractor shall be fully liable for any errors, omissions, or defects in such services. Contractor shall indemnify and hold harmless Owner and Engineer for any deficiencies arising from such services.

405. DELEGATION OF PROFESSIONAL DESIGN SERVICES

A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the

performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.

B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.

C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.

E. Pursuant to this Article 405, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:

1. Checking for conformance with the requirements of this Article 405;
2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.

F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.

G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

## 406. ENGINEER'S STATUS

The Engineer shall resolve all questions which arise as to the quality and acceptability of materials furnished and the Work performed, manner of performance, rate of progress of the Work, interpretation of the Contract Documents, compensation, and disputes and mutual rights between Contractors under the Contract Documents. The Engineer shall determine the amount and quantity of the Work performed and materials furnished. The Engineer shall have the authority to order the partial or complete suspension of the Work whenever it may be necessary to insure the proper fulfillment of the Contract. The Work shall be prosecuted in such order as is acceptable to the Engineer.

The Engineer and all duly authorized representatives shall at all times have access to the Work wherever it is in preparation or progress and the Contractor shall provide proper facilities for such access and for inspection. The Engineer reserves the right to inspect and reject materials and workmanship at any stage of the construction. If any Work should be covered up or made inaccessible without approval or consent of the Engineer, it must, if required by the Engineer, be uncovered or made accessible for examination at the Contractor's expense. The presence or absence of the Engineer shall not relieve in any degree the responsibility or the obligation of the Contractor to construct in accordance with the Contract Documents.

If the Contract Documents, the Engineer's instructions, laws, ordinances, or any public authority require any Work to be specially tested or approved, the Contractor shall give the Engineer timely notice of its readiness for such inspection or testing. If the inspection or testing is by an authority other than the Engineer, the Contractor shall give the Engineer timely notice of the date fixed for such inspection.

The Engineer shall have the right to reject any materials and workmanship which, in the Engineer's opinion, are defective or unacceptable. The Contractor shall promptly remove, replace, and make good at the Contractor's cost any such defective or unacceptable Work. Any failure to reject Work at the time of its construction shall not be construed as an acceptance of defective Work.

If any doubt exists as to the character or acceptability of Work performed, the Engineer may order the Contractor to perform special tasks needed to expose, examine, or verify the character or acceptability of the Work and the Contractor shall promptly perform such special tasks. No extra payment shall be allowed to the contractor for such special tasks if the Work in question is found to be defective or unacceptable or if such special tasks are already required or implied under the Contract Documents. If, however, the Work in question is found to be acceptable and the said special tasks are not already required or implied under the Contract Documents, such special tasks shall be paid for as Changes in the Work.

## 407. PLANS, DRAWINGS, AND SPECIFICATIONS

Unless otherwise provided in the Contract Documents, the Owner will furnish the Contractor the plans, drawings, or specifications in electronic format, that are reasonably necessary to carry out the Work. The Engineer may also furnish from time to time such additional detail drawings or other information as he or she may consider necessary. The Contractor shall keep on the worksite a copy of the plans, drawings, and specifications and shall at all times give the Engineer access to them.

The Contractor shall check carefully all dimensions shown on the plans and drawings before beginning the Work. Should errors be discovered, the Engineer's attention shall be called to the same and proper corrections made.

Contours or profiles of the ground, where shown on the plans or drawings, are believed to be reasonably correct but are not guaranteed to be absolutely so and, together with any schedule of quantities, are presented only as an approximation. No payment shall be made for additional Work due to minor discrepancies in existing grade.

## 408. REFERENCE POINTS

Owner shall provide engineering surveys to establish reference points for construction which in Engineer’s judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

## 409. SUBMITTALS

The Contractor shall submit to the Engineer shop drawings or schedules of all materials and products required for the Work. Material samples or additional data shall be submitted by the Contractor as required by the Specifications. Shop drawings, schedules, samples, and additional data shall be submitted before materials and products are ordered and in ample time to permit satisfactory progress of the Work. Unless otherwise specified in the Contract Documents, shop drawings and schedules shall be submitted in an electronic format that is specified and approved by Owner and Engineer and in such detail as may be necessary for the Engineer to inform him or herself of the design and character of the various materials and products which the Contractor proposes to use for the Work.

The Contractor shall promptly make any corrections or revisions in the shop drawings or schedules as may be required by the Engineer and shall resubmit the same without delay. Upon the Engineer's review of shop drawings, samples, schedules, or other data, Engineer shall confirm to the Contractor that the corrections or revisions are acceptable or, if not acceptable, Engineer shall state additional corrections or revisions needed. Materials and products furnished shall be in conformance with such approved shop drawings, samples, schedules, and data. Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

It is expressly understood that review by the Engineer of the Contractor's submitted shop drawings, schedules, samples, or other data shall in no way release the Contractor from his responsibility to properly fulfill the requirements of the Contract Documents nor from his liability to replace materials or products should they prove defective or inappropriate or fail to meet the specified requirements.

410. OWNERSHIP OF RECORDS.

Any Records created by the Contractor for the Owner as part of the Work shall be the property of the Owner. The Contractor shall maintain the Records for the duration of the Contract, including the time of the Contractor's Guarantee. The Contractor shall provide the Records to the Owner at any time, within five (5) days of the Owner's request. At the expiration or early termination of the Contract, the Contractor shall provide to the Owner all Records relating to the Work.

Contractor and its Subcontractors and Suppliers shall not have or 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 reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.

411. SERVICES, MATERIALS AND EQUIPMENT

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are

specifically called for in the Contract Documents.
B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. If not otherwise provided, material or Work called for in this Contract shall be furnished and performed in accordance with well-known established practices and standards recognized by architects, engineers, and the trade. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.
The Contractor shall be responsible for loading, unloading, and transporting all materials and equipment furnished by the Owner for use in the Work. The Contractor shall return all unused materials and equipment to the Owner as directed by the Owner, except as otherwise provided in this Contract.

412. "OR EQUAL" CLAUSE

Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, minimum standard of design, efficiency, and quality required, and shall not be construed in such a manner as to exclude other manufacturers' products of comparable type, quality, design, and efficiency. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that the proposed item:

1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;

3) has a proven record of performance and availability of responsive service; and

4) is not objectionable to Owner or the Engineer.

b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.

Contractor shall provide all data in support of any proposed "or equal" item at Contractor's sole expense.
Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be

the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines, in his or her sole discretion that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination. Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding and may not be reversed through an appeal under any provision of the Contract.

If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Article 413.

413. SUBSTITUTION

A. Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.

1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.
2. The requirements for review by Engineer will be as set forth in Paragraph 4.0x.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:

a. must certify that the proposed substitute item will:

1) perform adequately the functions and achieve the results called for by the general design;
2) be substantially similar in substance to the item specified; and
3) be suited to the same use as the item specified.

b. must state:

1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.

c. must identify:

1) all variations of the proposed substitute item from the item specified; and
2) available engineering, sales, maintenance, repair, and replacement services.

d. must contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other

contractors affected by any resulting change.

B. Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines, in his or her sole discretion, that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination. Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
Contractor shall promptly provide all data in support of any proposed substitute at Contractor's expense.
If Engineer approves the substitution request, Contractor shall promptly execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

414. OWNER'S RIGHT TO DO WORK

The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

If the Contractor should neglect to prosecute the Work properly or fail to perform any provision of this Contract, the Owner may, after 3 days' written notice to the Contractor and its Surety, without prejudice to any other remedy Contractor may have, make good such deficiencies and may deduct the cost thereof from the payment due the Contractor.

In case of an emergency which threatens loss, damage, or injury to persons or property and which requires immediate action to remedy in the absence of the Contractor's personnel, then and in that event the Owner, with or without notice to the Contractor or its Surety, may provide suitable protection to the said property and persons by causing such Work to be done and such material to be furnished as shall provide such protection as the Owner may consider necessary and adequate. The cost and expense of such Work and material so furnished shall be borne by the Contractor, and if the same shall not be paid on presentation of the bills therefore, then such costs shall be deducted from any amounts due or to become due the Contractor. The performance of such emergency Work under the direction of the Owner shall in no way relieve the Contractor from any damages which may occur during or after said emergency Work.

In the event that the Contractor refuses or neglects to use measures to protect the Work from damage or the Contractor is guilty of carelessness or incompetence in the execution of the Work such that public or private property is left in an unacceptable condition at the end of the work day and the Contractor is unavailable or unwilling to rectify the unacceptable condition to the satisfaction of the Engineer, in his or her sole discretion, in a timely manner, the Owner may remedy the situation and deduct all costs incurred from the amounts due the Contractor.

## 415. APPRENTICESHIP STANDARDS

A. All apprentices must be registered with the WI Department of Workforce Development.

B. Ratio of Apprentices to Skilled Workers by Trade: The ratio of skilled employees, journey workers, and apprentices shall be strictly followed as follows:

1. One apprentice will be allowed per company for companies with at least one full–time skilled/journey employee on job site.
2. A second apprentice may be added with 3 or 4 skilled/journey employees on jobsite. Two more journey workers than apprentices between five and twelve skilled/journey workers. Thereafter, one additional apprentice for two journey workers.
3. Fifth (final) year apprentices will be allowed to work alone on those jobs for which they have been trained and qualified for. During this period, they will not be counted toward the total number of apprentices for the purpose of the ratio.
4. At no time on a job site can there be more apprentices than journey workers.

C. Supervision of Apprentices: The apprentice shall be trained under the supervision of skilled trade persons regularly employed by the sponsoring employer. Apprentices require on the-job supervision to ensure thorough, safe training and continuity of employment by the sponsoring employer. Unless noted by trade, final year apprentices do not have to be in direct supervision with a skilled employee. Apprentices shall never be given the responsibility to be the direct supervisor of other apprentices. On the job the ratio of apprentices to skilled trade persons shall be consistent with proper supervision.

1. First year apprentices may not work on or be exposed to live circuits or systems.
2. Fifth (final) year apprentices will be allowed to work alone on those jobs for which they have been trained and qualified for. During this period, they will not be counted toward the total number of apprentices for the purpose of the ratio.
3. At no time on a job site can there be more apprentices than journey workers.
4. Apprentices may not supervise other apprentices.

## PART 5: PROSECUTION, PROGRESS, AND PAYMENT

501: PARTIAL PAYMENTS

Not later than the 20th day of each calendar month, and except as provided herein, the Owner will make partial payment to the Contractor on the basis of a duly certified and approved estimate of the Work performed by the Contractor during the preceding calendar month. Such estimates shall be submitted by the Contractor not later than the five business days prior to the first (1st) business day of the respective calendar month. Estimates submitted after this deadline will not be considered until the following month. Estimates shall be submitted on forms acceptable to the Engineer and shall be subject to the Engineer's review and approval. If approved by the Engineer, such estimates may include materials and equipment for the Project which are suitably stored at the site of the Project.

The Owner will retain 5% of the amount of each estimate until 50% of the Contract dollar amount of the Work is complete. This retainage will be held by the Owner until final acceptance of the Work by the Commission. No additional retainage by the Owner will be made unless the Work does not proceed satisfactorily. If the Work does not proceed satisfactorily, as determined by the Engineer in his or her sole discretion, the Owner may retain up to 10% of the value of the completed Work until satisfactory progress is achieved.

Payments by the Owner may be delayed due to disruptions in the Commission meeting schedule, for Owner's cash flow management, or similar reasons.

The Contractor shall pay (1) for all transportation and utility services not later than the 20th day of the calendar month following that in which such services are rendered; (2) for all materials, tools, and other expendable equipment to the extent of 90% of the cost thereof, not later than the 20th day of the calendar month following that in which such materials, tools, and equipment are incorporated or used; and (3) to each of its Subcontractors not later than the 5th day following each payment to the Contractor the respective amount allowed the Contractor on account of the Work performed by the Subcontractors to the extent of such Subcontractor's interests therein.

The Contractor shall make prompt payment of all claims for labor performed and material furnished, used, or consumed in the Work including, without limitation because of specific enumeration, fuel, lumber, building materials, machinery, vehicles, tractors, equipment, fixtures, apparatus, tools, appliances, supplies, electric energy, gasoline and other motor oil, lubrication oil and greases, and the premiums for Worker's Compensation Insurance. Failure to make prompt payments may result in a suspension of the Work. Contractor shall indemnify and hold harmless the Owner and the Engineer for any claims arising from a failure to make prompt payments hereunder.

502. SUBSTANTIAL COMPLETION

When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

Within 10 business days after receiving Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer

does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor, and Contractor shall address the deficiencies promptly. A re-inspection will be conducted within 5 business days of Contractor's notice that deficiencies have been corrected.

If Owner and Engineer consider the Work substantially complete, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Additionally, the Owner and Contractor will negotiate the division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

The Engineer will execute and deliver to Owner and Contractor a final certificate of Substantial Completion which will fix the date of Substantial Completion and define the division of responsibilities with respect to security, operation, protection of the Work, property insurance, maintenance, heat, and utilities. A revised punch list of items to be completed or corrected, reflecting such changes from the draft punch list as deemed necessary by the Engineer, will be attached to the certificate of Substantial Completion.

After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

503. FINAL INSPECTION, FINAL ACCEPTANCE OF THE WORK, AND FINAL PAYMENT

Within 10 business days after completion of all the Work required under the Contract, including any field testing, site restoration, and cleanup, the Contractor shall request in writing a final inspection of the Work. Such final inspection shall then be conducted by the Engineer or his or her authorized representative within ten (10) business days after receipt of the Contractor's written request. If, in the sole opinion of the Engineer, the final inspection reveals items of Work still to be performed, the Contractor shall promptly perform them and then request a re-inspection. If the final inspection or re-inspection reveals that all the Work has been completed to the sole satisfaction of the Engineer, the Engineer shall certify that the Work has been completed as of such inspection date.

After Contractor has, in the sole opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents, and other documents, Contractor may make application for final payment.

The final Application for Payment must be accompanied (except as previously delivered) by:

a. all documentation called for in the Contract Documents;

b. consent of the surety, if any, to final payment;
c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
d. a list of all duly pending Change Proposals and Claims; and
e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.

If, on the basis of Engineer's sole observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, the Engineer shall, within thirty (30) days thereof, recommend to the Commission final acceptance of the completed Work and submit a final estimate of the amount due the Contractor under this Contract. Upon final acceptance of the Work and approval of this final estimate by the Commission, the Owner shall pay to the Contractor within ten (10) business days all monies due to the Contractor under the provisions of these Contract Documents, such monies not to include special retainers for maintenance guarantees or any other sums which may have been provided for in the Contract Documents. The Contractor agrees that it shall not be entitled to demand or receive payments for any portion of the Work except in the manner set forth in this Contract.

504. OWNER'S RIGHT TO WITHHOLD CERTAIN AMOUNTS

In addition to payment to be retained by the Owner under preceding provisions of these General Conditions, the Owner may, at the sole discretion of the Engineer, withhold a sufficient amount of any payment otherwise due to the Contractor to cover payments that may be earned or due for (1) just claims for labor or materials furnished in or about the performance of the Work on the Project under this Contract; (2) defective Work not remedied; (3) failure of the Contractor to make proper payments to its Subcontractors; (4) unresolved safety violations; (5) unresolved permit or licensing violations; or (6) any violation or breach of any Contract Documents . The Owner shall disburse and shall have the right to act as agent for the Contractor in disbursing such funds as have been withheld, pursuant to this paragraph, to the party or parties who are entitled to payment therefrom. The Owner will render to the Contractor a proper accounting of all such funds disbursed on behalf of the Contractor.

505. DEDUCTION FOR UNCORRECTED WORK

If the Owner deems it expedient to accept Work injured or not done in accordance with the Contract, the difference in value together with a fair allowance for the damages shall be deducted.

506. TIME OF COMPLETION AND LIQUIDATED DAMAGES

All the Work required under the Contract, including any field testing, site restoration, and cleanup, shall be fully completed by the Contractor, as certified to the sole satisfaction of the Engineer, within the time fixed by the Contract for completion of the Work or within such extra time as may have been allowed by authorized extensions to the time of completion.

The number of days within which, or the dates by which, Milestones are to be achieved, the Work is to be substantially completed, and completed and ready for final payment, are set forth in the Agreement. Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for Final Payment, are set forth

in the Agreement.

## 507. DELAYS AND EXTENSIONS OF TIME

If the Contractor is delayed in the completion of the Work by any act or neglect of the Owner or the Owner's representative; by any other contractor employed by the Owner; by strikes, lockouts, fire, unavoidable casualties, or any causes beyond the control of the Contractor, then the time of completion may be extended for a reasonable time as determined by Engineer. The Contractor shall notify the Owner in writing of the cause of such delay within five (5) business days from the beginning of any such delay. The Contractor shall hold the Owner and Engineer harmless for any such delay and shall not be entitled to any additional compensation from the Owner.

In the event any material alterations or additions are made as herein specified, which in the opinion of the Engineer will require additional time for the execution of any Work under this Contract, the time of completion of the Work shall be extended by such a period of time as may be fixed by the Engineer if the Contractor shall request in writing an extension of time within five (5) business days after being notified in writing of such alterations or additions. No extensions of time shall be given for any minor alterations or additions. The Contractor shall not be entitled to any damage or compensations from the Owner on account of such additional time required for the execution of the Work. The Engineer's decision on the time extension necessary to complete such additional Work shall be final and binding upon both the Contractor and the Owner.

## 508. SUBCONTRACTING

Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner and the Engineer. The Contractor’s retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor’s obligation to Owner to perform and complete the Work in accordance with the Contract Documents. The Contractor shall be as fully responsible to the Owner for the acts and omissions of the Subcontractor as the Contractor is for the acts and omissions of a person directly employed by the Contractor. This Contract obligation shall be in addition to the liability imposed by law upon the Contractor. Nothing contained in the Contract Documents shall create any contractual relationship between any Subcontractor and the Owner. Any deficiencies or non-compliance by Subcontractors will be treated as if directly caused by the Contractor, and the Contractor shall be liable for any resulting delays, costs or damages.

Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so. Subsequent to the submittal of Contractor’s Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.

Prior to entry into any binding subcontract or purchase order, Contractor shall submit to the Engineer the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless the Engineer raises a substantive, reasonable objection within 5 business days.

Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.

If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.

No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.

Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.

The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.

All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.

Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.

## 509. ASSIGNMENT OF CONTRACT

The Contractor shall not assign this Contract or any part thereof without the written consent of the Owner. No assignment of this Contract shall be valid unless it shall contain provision that the funds to be paid to the Assignee under the assignment are subject to the prior lien for services rendered or materials supplied for the performance of the Work called for in this Contract in favor of all persons, firms, or corporations rendering such services or supplying such materials.

## 510. LIEN WAIVER AND INDEMNITY AGAINST LIENS

The Contractor waives any and all rights to construction liens against the Owner or its properties that the Contractor would otherwise be entitled to under the Wisconsin Statutes. The Contractor shall pay for all labor, materials, and services furnished to the Contractor in connection with the performance of this Contract. In addition to any other indemnity, the Contractor shall hold the Owner harmless from any liability, damages, costs, or expenses, including attorneys' fees, caused by reason of any construction or mechanic's liens filed against the property of the Owner arising out of the Contractor's or a subcontractor's performance of this Contract. At the Owner's request, the Contractor shall promptly furnish satisfactory evidence that all labor, materials, and services have been paid for. In addition to the rights and obligations set forth herein, the Owner may withhold any monies due the Contractor as a result of lien claims filed against the Contractor or the Owner unless the Contractor posts a bond, in a form and underwritten by a surety satisfactory to the Owner, providing for the prompt payment when due of any amounts for labor, materials, or

services furnished to the Contractor in connection with this Contract and holding the Owner and Engineer harmless from such lien claims or threatened lien claim(s).

511. VIOLATION OF CONTRACT PROVISIONS

If the Contractor shall abandon the Work under this Contract, or fail to perform the Work of the character and in the time herein specified, or fail financially or for any other cause whatsoever is unable to carry out this Contract and complete the Work, or if Contractor assigns the Contract or loses control of the Work for any cause whatsoever except by act of God, the United States Government, or the public enemy or if Contractor refuses or neglects to follow instructions of the Engineer or if in the sole opinion of the Engineer any one of the following conditions exists: (1) the Contractor refuses or neglects to use measures to protect the Work from damage or (2) the Contractor is guilty of carelessness or incompetence in the execution of the Work or (3) the Work has been or is being delayed by the Contractor or (4) the rate of progress is not such as to insure completion of the Work within the time specified or (5) the Work or any part thereof is unnecessarily or unreasonably delayed or (6) the Contractor is willfully or persistently violating any of the conditions or covenants of this Contract or (7) the Contractor is not fulfilling the Contract in good faith, then at such time and upon certification by the Engineer, in cases where the Engineer's opinion is required, the Owner may proceed to terminate this Contract as provided in these General Conditions.

512. TERMINATION FOR BREACH

If the Contractor or any of his Subcontractors shall in the sole judgment of the Engineer be unable to carry on the Work satisfactorily or if the Contractor or any of its Subcontractors shall violate any of the provisions of this Contract, the Owner may serve written notice upon the Contractor and its Surety of Owner’s intention to terminate this Contract. Such notice shall contain the reasons for the Owner's intention to terminate the Contract. If within ten (10) days after the service of such notice the Contractor, the Subcontractor, or the Surety have not proceeded to carry on the Work in accordance with this Contract and to the satisfaction of the Engineer, this Contract shall cease and terminate and the Owner shall have the right to take over the Work and prosecute the same to completion at the expense of the Contractor and the Surety. The Contractor and the Surety shall be liable to the Owner for any excess cost incurred by the Owner thereby; and in such event the Owner may take possession of and utilize in completing the Work such materials, appliances, and plant as may be on the site of the Work and necessary therefore.

In the event the Engineer determines, in his or her sole discretion, that the failure of the Contractor, Subcontractor, or Surety to perform the Work in accordance with the Contract has resulted in an emergency which will require that the Owner take over the Work immediately to avoid loss or waste of a substantial part of the Work already performed, the Owner may immediately take over the Work and prosecute the same at the expense of the Contractor and Surety to the extent necessary to avoid damage.

513. TERMINATION FOR OTHER CAUSES

Upon the occurrence of one or more of the following events, the Owner, after giving the Contractor prior written notice, shall have the sole discretion to terminate this Contract:

a) If the Contractor commences a voluntary case under any chapter of the Bankruptcy Code as now or hereafter in effect or if the Contractor takes any equivalent or similar action by filing a petition or otherwise relating to bankruptcy or insolvency.

b) If a petition is filed against the Contractor under any chapter of the Bankruptcy Code as now or hereafter in effect at the time of filing or if a petition is filed seeking any such equivalent or similar relief against the Contractor under any applicable laws in effect at the time relating to bankruptcy or insolvency.

c) If the Contractor makes a general assignment for the benefit of creditors.

d) If the Contractor admits in writing an inability to pay its debts generally as they become due.

514. LOSS OR DAMAGE

Until accepted by the Commission, the Work shall be at the Contractor's risk, and if any loss of or damage to the Work occurs prior to such acceptance, regardless of passage of title directly to the Owner prior to such acceptance, the Contractor shall, without cost to the Owner, promptly make repairs, replacements, or re-perform the Work as necessary to place the Work in the condition required by the Contract Documents.

## SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the General Conditions and other provisions of the Contract Documents as indicated below. All provisions that are not so amended or supplemented remain in full force and effect.

PART 2 INSURANCE, BONDS, AND LEGAL MATTERS

SC-201 Supplement General Condition Article 201 with the following provisions:

Insurance Requirements

**Minimum Contractor's Insurance**

The Contractor shall not commence work under this Contract until all insurance required hereunder has been obtained and such insurance certification has been reviewed by the Owner. The Contractor shall not allow any Subcontractor to commence work on his Subcontract until certification for all similar insurance required for that portion of the Work has been reviewed by the Owner. Review of the insurance certification by the Owner shall not relieve or decrease the liability of the Contractor hereunder. The insurance certification shall name as Additional Insureds the Madison Metropolitan Sewerage District.

The Contractor shall obtain, pay for, and maintain during the life of this Contract such Worker's Compensation and Employer's Liability, Comprehensive General Liability, Business Automobile Liability, and Umbrella Liability Insurance to protect the Contractor performing work covered by this Contract from claims for damages for bodily injury, including accidental death, as well as for claims for property damage which may arise from operations under this Contract whether such operations be by himself or any Subcontractor, or by anyone directly or indirectly employed by either of them, on the forms, and with limits not less than set forth below:

a) General Liability

- Comprehensive general liability coverage shall include, but not be limited to, Products and Completed Operations, Independent Contractors, Contractual Liability, Broad Form Property Damage, Personal Injury, Premises and Operations, and Explosion, Collapse and Underground.
- General aggregate limit shall be at least $2,000,000. Policy shall be endorsed such that this full limit is reserved specifically for the named Madison Metropolitan Sewerage District project.
- Products-Completed Operations Aggregate limit shall be at least $2,000,000.
- Each Occurrence limit shall be at least $1,000,000.

b) Automobile Liability

- Auto liability policy shall cover all autos, whether owned, non-owned, or hired.
- Bodily injury and property damage limits shall be at least $1,000,000 each, or
- Combined single limit shall be at least $1,000,000.

c) Excess Liability Umbrella Form

- Umbrella limits shall be at least $2,000,000 aggregate/$2,000,000 each occurrence.

d) Worker's Compensation and Employer's Liability

- Worker's Compensation limits shall be in accordance with all applicable state and federal statutes.
- Employer's Liability limits shall be at least $100,000 each accident, $500,000 disease policy limit, and $100,000 disease-each employee.

SC-203 Delete paragraph 203 in its entirety.

PART 3 SCOPE OF THE WORK

SC-302 Contractor shall be able to use toilets and other sanitary conveniences as allowed by Owner.

SC-315 Replace "final acceptance of the Work by the Commission" with "acceptance of the Work by the Owner"

PART 5 PROSECUTION, PROGRESS, AND PAYMENT

SC-501 Delete paragraph 501 in its entirety

SC-502 Delete paragraph 502 in its entirety

SC-503 Replace the last paragraph with:

If, on the basis of Engineer's sole observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, the Engineer shall, within ten (10) days thereof, recommend final acceptance of the completed Work. Upon final acceptance of the Work, the Owner shall pay to the Contractor within thirty (30) business days all monies due to the Contractor under the provisions of these Contract Documents, such monies not to include special retainers for maintenance guarantees or any other sums which may have been provided for in the Contract Documents. The Contractor agrees that it shall not be entitled to demand or receive payments for any portion of the Work except in the manner set forth in this Contract.

SC-506 Replace "Agreement" with "Request for Bid".

SC-514 Replace "Commission" with "Owner".

REQUEST FOR PROPOSAL
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**REQUEST FOR PROPOSALS**

**MADISON METROPOLITAN SEWERAGE DISTRICT**

**2025 ELECTRICAL EQUIPMENT MAINTENCE TESTING PROJECT**

The Madison Metropolitan Sewerage District (MMSD or the District) will receive sealed bids for the 2025 Electrical Equipment Maintenance Testing Project. Bids will be received at the office of the District, 1610 Moorland Road, Madison, Wisconsin 53713 until 1:00 p.m. local time on Tuesday, November 4, 2025, at which time and place all bids will be publicly opened and read aloud. All bid responses will be public records.

A pre-bid conference is not required. Bidders are encouraged to schedule a time to review the sites prior to bidding to observe actual conditions and verify all equipment.

**Project Location**

The project is located at MMSD's Nine Springs Wastewater Treatment Plant and its 18 Regional Pump Stations, all located in Dane County, Wisconsin.

**Project Description and Scope of Work**

The project scope includes routine maintenance testing of large electrical equipment such as dry type transformers, metal clad transformers, low and high voltage motors, low voltage MCC's, substation transformers, automatic transfers switches, low voltage power circuit breakers, freon type transformers, and low voltage molded case circuit breakers.

**Contractor Warranty**

Contractor shall guarantee the work performed under this Contract against defects in workmanship and materials. The warranty period shall be for one (1) year from the date of completion of the work. This guarantee shall cover all work and materials provided under the contract, including those provided by subcontractors or manufacturers. If any defect should appear during the guarantee period, the Contractor shall make required replacement or acceptable repairs of the defective work at Contractor's own expense and shall pay for damage to others work resulting from such defect.

**Project Sequence and Schedule**

Notice to Proceed is anticipated to be November 24, 2025. Final completion shall be one hundred twenty (120) calendar days from the Notice to Proceed. Contractor shall give written notice to the District at least five (5) working days in advance of the anticipated start of work. Completion includes approval by Electrical Maintenance Supervisor of evaluation report per section 16570.

**Safety**

The contractor agrees to perform all work under this contract in accordance with local, state, and federal safety regulations.

The Contractor is specifically notified that wastewater treatment plants, pumping stations and sewer systems contain confined space work areas which may be susceptible to accumulation of hazardous gases or depletion of oxygen levels.

Handling of hazardous materials, machinery operations, worker protection, and control of airborne dust and fumes shall comply with all applicable facility, local, state, and federal health and safety regulations.

**Bid Requirements**

All Bids must be made on the forms provided herein and shall be addressed to the Madison Metropolitan Sewerage District; Erik Rehr; 1610 Moorland Road, Madison, Wisconsin 53713; and shall be marked "Sealed Bid, 2025 Electrical Equipment Maintenance Testing Project."

Bids are requested in terms of a lump sum bid.

Bids shall include all labor, materials, equipment, tools, power, utilities, transportation, and all other services or items necessary to perform and complete in a workmanlike manner, the Headworks Building Grit Piping Replacement project. Contractor is responsible for obtaining all necessary permits at the contractor's expense. All work included under the Bidding Documents but not listed as bid item shall be considered as work incidental and subsidiary to the bid item.

This project is exempt from State of Wisconsin sales and use taxes in accordance with Wisconsin Administrative Rule Tax 11.11 pursuant to Section 77.54(26) of the Wisconsin Statutes.

The Bidders are required to carefully review all the Bidding Documents and to inform themselves of the conditions under which the work is to be performed. The Bidder, if awarded the Contract, shall not be allowed any extra compensation by reason of their failure to have fully informed themself prior to the bidding of any matter or thing which such Bidder might have fully informed them.

If the Bidder is in doubt as to the true meaning of any part of the Bidding Documents, the Bidder may submit to the District a written request for an interpretation thereof. Any interpretation of the Bidding Documents will be made only by an addendum duly issued.

A Bidder may withdraw their bid, providing such a written request is in the hands of the District by the time set for opening bids. When such a bid is reached, it will be returned unopened to the Bidder. No bid shall be withdrawn after the opening of bids for a period of thirty (30) calendar days after the scheduled time of receiving bids without the consent of the District.

**Bid Guarantee**

The Bid must be accompanied by Bid security made payable to Owner in an amount of 5% of the Bidder’s maximum Bid price.

**Terms**

The District reserves the right to reject any or all bids or to waive any technicality and accept any bid that may, in its opinion, be advantageous to the District.

Before award of any Contract can be approved, MMSD shall be satisfied that the Bidder involved maintains a permanent place of business, has adequate plant and equipment to do the work properly and expeditiously, has a suitable financial status to meet obligations incident to the work, has

appropriate technical experience, and has a satisfactory performance record. The award, if made, will be made to the lowest, qualified, responsive, responsible Bidder.

Within twenty (20) calendar days after the opening of bids, the Owner will accept one of the bids or will act as stated herein. The acceptance of the bid will be by written Notice of Award, mailed or delivered to the office designated in the bid.

Within ten (10) calendar days after receiving the Notice of Award, the successful Bidder shall sign the Contract hereto attached and submit to the District acceptable certificates of insurance required under the Contract Documents. Within fifteen (15) calendar days after receiving the signed Contract from the successful Bidder, the Owner's authorized agent will sign the Contract.

The Contractor shall not begin work until written Notice to Proceed has been issued by MMSD. The Contractor shall abide by any special instructions which may be stated in the Notice to Proceed.

If the Bidder whose bid is accepted should fail to execute the proper Contract within the time allowed as stated herein, the Owner may award the Contract to another Bidder and the certified check or bid bond of the first-mentioned Bidder shall be forfeited.

Payment will be made to the Contractor within 30 days of written request for payment after completion of the work. The written request for payment shall indicate the date of completion for warranty purposes.

Contract letting is subject to the provisions of Section 66.0901, Wisconsin Statutes.

**Project Specifications**

## Summary of Project Work

For details of work effort, see Project Requirement Section

| Location | Qty | Description | Bid Required Work |
|---|---|---|---|
| **Nine Springs Wastewater Treatment Plant 1610 Moorland Road** | | | |
| Switchgear Panel H1-1<br><br>PR 7 | 1 | 13.8/4.16 kV, 10/14 MVA Transformer #1 | |
| | 1 | Substation Connections & Incoming Bus work | |
| | 1 | Westinghouse 15 kV Metal Clad Switchgear - Type DHP | |
| | 1 | Westinghouse Magnetic ACB, 150 DHP-750C, 15 kV, 1200A | |
| | 3 | Westinghouse CO-8 Ø Time Overcurrent Relay with Inst. Trip | |
| | 1 | Westinghouse CO-6 Neutral Time Overcurrent Relay | |
| | 1 | Westinghouse CO-6 Gnd. Time Overcurrent Relay | |
| | 3 | Westinghouse HU Differential Relay with Instantaneous Trip | |
| | 1 | ASCO Transfer Switch | |
| | | Battery NI-CAD 48VDC | |
| | | Battery Charger | |
| | | Switchboard Watthour Meters | |
| | | Westinghouse Demand Register MARK 1a, type D4B-2FM | |
| | | AB Deion Circuit Breakers | |
| | 3 | Lightning Arresters | |
| | | | |
| Switchgear Panel H1-2 | 1 | 13.8/4.16 kV, 10/14 MVA Transformer #2 | |
| | 1 | Substation Connections & Incoming Bus work | |
| | 1 | Westinghouse 15 kV Metal Clad Switchgear - Type DHP | |
| | 1 | Westinghouse Magnetic ACB, 150 DHP-750C, 15 kV, 1200A | |
| | 3 | Westinghouse CO-8 Ø Time Overcurrent Relay with Inst. Trip | |
| | 1 | Westinghouse CO-6 Neutral Time Overcurrent Relay | |
| | 1 | Westinghouse CO-6 Gnd. Time Overcurrent Relay | |
| | 3 | Westinghouse HU Differential Relay with Instantaneous Trip | |
| | | AB Deion Circuit Breakers | |
| | 3 | Lightning Arresters | |
| | | 25 kVA Transformer | |
| | | Westinghouse Demand Register MARK 1a, type D4B-2FM | |
| | | | |

| | | | |
|---|---|---|---|
| Main Switchgear S1<br><br>PR 8 | 1 | S1-1, Main Bkr, West. 5 kV, 50-DHP-250 Circuit Bkr, 2000A | |
| | 1 | ASCO Transfer Switch | |
| | 3 | Westinghouse CO-8 Ø Time Overcurrent Relay | |
| | 1 | Westinghouse CO-6 Gnd. Time Overcurrent Relay | |
| | 1 | Westinghouse CWC Directional Gnd Relay | |
| | 1 | Westinghouse CV-2 Short Time Undervoltage Relay | |
| | 1 | Westinghouse CVQ Ø Sequence and Undervoltage Relay | |
| | 1 | Allen Bradley Bulletin 1426 PowerMonitor 5000 | |
| | | | |
| | 1 | S1-2, Main Bkr, West. 5 kV, 50-DHP-250 Circuit Bkr, 2000A | |
| | 3 | Westinghouse CO-8 Ø Time Overcurrent Relay | |
| | 1 | Westinghouse CO-6 Gnd. Time Overcurrent Relay | |
| | 1 | Westinghouse CWC Directional Gnd Relay | |
| | 1 | Westinghouse CV-2 Short Time Undervoltage Relay | |
| | 1 | Westinghouse CVQ Ø Sequence and Undervoltage Relay | |
| | 1 | Allen Bradley Bulletin 1426 PowerMonitor 5000 | |
| | | | |
| | 1 | S1-3, Tie Bkr, 5 kV, West. 50-DHP-250 Circuit Bkr, 2000A | |
| | 3 | West. CO-11 Ø Time Overcurrent Relay with Inst. Trip | |
| | 1 | Westinghouse SC Gnd. Time Overcurrent Relay | |
| | | | |
| | 1 | S1-4, Feeder Bkr, 5 kV, West. 50-DHP-250 Ckt. Bkr, 1200A | |
| | 3 | West. CO-11 Ø Time Overcurrent Relay with Inst. Trip | |
| | 1 | West. SC Gnd. Time Overcurrent Relay | |
| | | | |
| | 1 | S1-5, Feeder Bkr, 5 kV, West. 50-DHP-250 Ckt. Bkr, 1200A | |
| | 3 | West. CO-11 Ø Time Overcurrent Relay with Inst. Trip | |
| | 1 | Westinghouse SC Gnd. Time Overcurrent Relay | |
| | | | |
| | 1 | S1-6, Feeder Bkr, 5 kV, West. 50-DHP-250 Ckt. Bkr, 1200A | |
| | 3 | West. CO-11 Ø Time Overcurrent Relay with Inst. Trip | |
| | 1 | Westinghouse SC Gnd. Time Overcurrent Relay | |
| | | | |
| | 1 | S1-7, Feeder Bkr, 5 kV, West. 50-DHP-250 Ckt. Bkr, 1200A | |
| | 3 | West. CO-11 Ø Time Overcurrent Relay with Inst. Trip | |
| | 1 | Westinghouse SC Gnd. Time Overcurrent Relay | |
| | | | |
| | 1 | S1-8, Feeder Bkr, 5 kV, West. 50-DHP-250 Ckt. Bkr, 1200A | |
| | 3 | West. CO-11 Ø Time Overcurrent Relay with Inst. Trip | |
| | 1 | Westinghouse SC Gnd. Time Overcurrent Relay | |
| | | | |
| | 1 | S1-9, Feeder Bkr, 5 kV, West. 50-DHP-250 Ckt. Bkr, 1200A | |
| | 3 | West. CO-11 Ø Time Overcurrent Relay with Inst. Trip | |
| | 1 | Westinghouse SC Gnd. Time Overcurrent Relay | |
| | | | |
| | 1 | S1-10, Feeder Bkr, 5 kV, West. 50-DHP-250 Ckt. Bkr, 1200A | |
| | 3 | West. CO-11 Ø Time Overcurrent Relay with Inst. Trip | |
| | 1 | Westinghouse SC Gnd. Time Overcurrent Relay | |
| | | | |

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|---|---|---|---|
| | 1 | S1-11, Feeder Bkr, 5 kV, West. 50-DHP-250 Ckt. Bkr, 1200A | |
| | 3 | West. CO-11 Ø Time Overcurrent Relay with Inst. Trip | |
| | 1 | Westinghouse SC Gnd. Time Overcurrent Relay | |
| | | | |
| | 1 | S1-12, Feeder Bkr, 5kV, West. 50-DHP-VR250 CB, 1200A | |
| | 3 | West. CO-11 Ø Time Overcurrent Relay with Inst. Tri | |
| | 1 | Westinghouse SC Gnd. Time Overcurrent Relay | |
| | | | |
| | 1 | S1-13, Feeder Bkr, 5kV, West. 50-DHP-VR250 CB, 1200A | |
| | 3 | West. CO-11 Ø Time Overcurrent Relay with Inst. Trip | |
| | 1 | Westinghouse SC Gnd. Time Overcurrent Relay | |
| | | | |
| Unit Sub. U1<br><br>PR 9 | 2 | 4.16 kV Main Fused Disconnect, Square D HVL | C |
| | 2 | 4.16kV/480V, 1000 kVA Xfmr, AA, Square D Power-Cast | A |
| | 1 | 480V Switchgear, Square D | |
| | 2 | Power Logic Circuit Monitors, Square D | |
| | 2 | 480V Main Breaker, Square D | B |
| | 1 | 480V Tie Circuit Breaker, Square D | B |
| | 3 | 480V Feeder Breaker, Square D | B |
| | 1 | 480V Spare Feeder Breaker, Square D | B |
| | | | |
| Unit Sub. U2<br><br>PR 10 | 2 | 4.16 kV Main Fused Disconnect, Square D HVL | C |
| | 2 | 4.16kV/480V, 1500 kVA Xfmr, OA/FA, Square D | A |
| | 1 | 480 Volt Switchgear, Square D | |
| | 2 | Power Logic Circuit Monitors, Square D | |
| | 2 | 480V Main Breaker, Square D | B |
| | 1 | 480V Tie Breaker, Square D | B |
| | 6 | 480V Feeder Breaker, Square D (1 is tie to SSU13) | B |
| | 0 | 480V Spare Breaker, Square D | B |
| | | | |
| Unit Sub. U3<br><br>PR 11 | 2 | 4.16 kV Main Breakers, Cutler-Hammer 50 VCP-W-25C | C |
| | 4 | Power Circuit Monitors, Eaton, EDR 3000 | |
| | 2 | 4.16kV/480V, 1500 kVA Transformer, AA/FFA, ABB | A |
| | 1 | 480 Volt Switchgear, Cutler-Hammer | |
| | 2 | 480V Main Breaker, Cutler-Hammer, MDS-632 | B |
| | 1 | 480V Tie Breaker, Cutler-Hammer, MDS-632 | B |
| | 10 | 480V Feeder Breaker, Cutler-Hammer, MDS-608 | B |
| | 1 | 480V Spare Breaker Cutler-Hammer, MDS-608 | B |
| | | | |
| Unit Sub. U6<br><br>PR 12 | 2 | 4160V Circuit Breaker, Square D, VR, VACUUM, Main 1 and Main 2 | A |
| | 2 | 4160V Transformer, Square D Power Cast II, HV 4160, LV 408Y/277V | B |
| | 3 | 480V Circuit Breaker, 2000 Amp, Square D Masterpact NW20H3, Micrologic 6.0 P; Main 1, Main 2, and Tie | C |
| | 5 | 480V Circuit Breaker, 800 Amp, Square D Masterpact NW08H3, Micrologic 6.0 P; MCC P41 (ACB4), MCC P42 (ACB4), MCC P71 (Effluent), MCC P72 (Effluent), DP48 (U06) | C |
| | 2 | Allen Bradley Power Monitor 5000 | |
| | | | |
| | | | |

| | | | |
|---|---|---|---|
| Unit Sub. U14<br><br>PR 15 | 2 | 4.16 kV, 600A Fused Air Interrupter Switch - Square D | A |
| | 2 | 4.16 kV/ 480V, 1500 kVA Transformer, OA | B |
| | 1 | 480 Volt Switchgear - Square D | |
| | 2 | 480V Main Breaker | |
| | 1 | 480V Tie Breaker | |
| | 2 | 480V Feeder Breaker | |
| | | | |
| Unit Sub. U15<br><br>PR 16 | 2 | 4.16 kV, 600A Fused Disconnect - Square D HVL | C |
| | 2 | 4.16 kV/ 480V, 1500 kVA Xfmr, AA, Square D Power-Cast | A |
| | 1 | 480 Volt Switchgear - Square D | |
| | 2 | PowerMonitor 1000, Allen Bradley | |
| | 2 | 480V Main Breaker | B |
| | 1 | 480V Tie Breaker | B |
| | 4 | 480V Feeder Breaker | B |
| | 1 | 480V Spare Feeder Breaker | B |
| | | | |
| Medium Volt Starter Panel M51 W. Blower Building<br><br>PR 17 | 1 | 5 kV Switchgear | |
| | 2 | 4.16 kV Main Disconnect Switch | A |
| | 1 | 4.16 kV Tie Disconnect Switch (cannot be done, all blowers cannot be off at same time) | |
| | 3 | 5 kV Motor Starter | |
| | 3 | West. ITH Instantaneous O. C. Relay | B |
| | | | |
| Medium Volt Starter Panel M71 Effluent Building<br><br>PR 18 | 1 | 5 kV Switchgear | |
| | 2 | 4.16 kV Main Disconnect Switch | A |
| | 1 | 4.16 kV Tie Disconnect Switch | A |
| | 5 | 5 kV Motor Starter | |
| | 5 | West. ITH Instantaneous O. C. Relay | B |
| | | | |
| Switchgear Panel 582 East Blower Building<br><br>PR 19 | 1 | 5 kV Switchgear, General Electric | |
| | 2 | 4.16 kV Main Disconnect Switch | A |
| | 1 | 4.16 kV Tie Disconnect Switch | A |
| | 4 | 4.16 kV Feeder Disconnect Switch | A |
| | 6 | 5 kV Motor Starter | |
| | | | |
| Pumping Station 3<br><br>PR 43 | 1 | 200A Main Fuse Disconnect - 240V | |
| | 1 | 13.8 kV/240V, 45 kVA Transformer (MG&E, pole top) | |
| | 2 | Solid State Motor Starter, 240 V | |

| Location | Qty | Description | Bid Required Work |
|---|---|---|---|
| **Non-Nine Springs Wastewater Treatment Plant Sites** | | | |
| Pumping Station 1 104 North 1st Street PR 41 | 2 | 600 HP VFD Motor Starter with Solid State bypass | |
| | 2 | 150 HP VFD Motor Starter with bypass Contactor | |
| | 1 | 480 Volt Motor Control Center - Square D | |
| | 1 | 480 Volt Power Switchgear - Square D | |
| | 2 | Power Logic Circuit Monitors, Square D | |
| | 2 | 480V Main Breaker (3200 amp frame) | A |
| | 1 | 480V Tie Breaker (3200 amp frame) | A |
| | 2 | 480V Motor Feeder Breaker (1600 amp frame) | A |
| | 2 | 480V MCC Feeder Breaker (800 amp frame) | A |
| | 2 | 480V Spare Feeder Breaker (1600 amp frame) | A |
| | 4 | Allen Bradley, 825-P Motor Protection Relay | |
| Pumping Station 2 833 West Washington Ave. PR 42 | 2 | 600HP VFD, ABB ACS880-37 | |
| | 2 | 600 HP Solid State Motor Starter w/ bypass Contactor | |
| | 1 | 480 Volt Motor Control Center - Square D | |
| | 1 | 480 Volt Power Switchgear - Square D | |
| | 2 | Power Logic Circuit Monitors, Square D | |
| | 2 | 480V Main Breaker (3200 amp frame) | A |
| | 1 | 480V Tie Breaker (3200 amp frame) | A |
| | 4 | 480V Motor Feeder Breaker (1600 amp frame) | A |
| | 2 | 480V MCC Feeder Breaker (800 amp frame) | A |
| | 2 | 480V Spare Feeder Breaker (1600 amp frame) | A |
| | 4 | Allen Bradley, 825-P Motor Protection Relay | |
| Pumping Station 4 522 John Nolen Drive PR 44 | 3 | 480V, Eaton Magnum DS, MDS608, 800 Amp, 480 VAC with Digitrip 520M; Main, Tie, and Generator Breakers | |
| | 3 | VFD: ABB ACS880, FLA 117A, Largest Motor 156 A, 480 VAC | |
| | 1 | Power Monitor: Allen Bradley Power Monitor 5000 | |
| Pumping Station 5 5221 Lake Mendota Dr. PR 45 | 2 | 13.8 kV/480 V Transformers (MG&E) | |
| | 2 | 200A Main Breaker - Square D 480 V ACB | B |
| | 1 | 200A Tie Breaker - Square D 480 V ACB | B |
| | 2 | 200A Main Contactors | C |
| | 1 | 200A Tie Contactor | C |
| | 3 | 100 A Feeder Breakers | B |
| | 3 | Adjustable Frequency Drives | |

| | | | |
|---|---|---|---|
| Pumping Station 6<br>402 Walter Street<br><br>PR 46 | 2 | 125 HP VFD Motor Starter with Solid State bypass | |
| | 2 | 125 HP RVSS Motor Starter with bypass Contactor | |
| | 1 | 480 Volt Motor Control Center - Allen Bradley | |
| | 1 | 480 Volt Power Switchgear - Square D | |
| | 2 | Power Logic Circuit Monitors, Square D | |
| | 2 | 480V Main Breakers (1600 amp frame) | A |
| | 1 | 480V Tie Breaker (1600 amp frame) | A |
| | 4 | 480V Motor Feeder Breakers (800 amp frame) | A |
| | 2 | 480V MCC Feeder Breakers (800 amp frame) | A |
| | 1 | 480V Generator Breaker (1600 amp frame) | A |
| | | | |
| Pumping Station 7<br>6300 Metropolitan Lane<br>Monona<br><br>PR 47 | 3 | 480V, Square D Masterpact NW20H3, 2000A Frame, Micrologic 6.0P Trip Unit; Main 1, Main 2, and Tie breakers | A |
| | 9 | 480V, Square D Masterpact NW08H3, 800A Frame, Micrologic 6.0P Trip Unit; Generator, Pump 1, Pump 2, Pump 3, Pump 4, MCC feed 1, MCC Feed 2, Spare 1, and Spare 2 | A |
| | 2 | Power Monitor: Allen Bradley Power Monitor 5000 | |
| | 1 | 480V, VFD, Allen Bradley, | |
| | 1 | 480V, VFD, Allen Bradley, , Input 176 Amps at 480 VAC, Output 186 Amps at 460 VAC | |
| | | | |
| Pumping Station 8<br>967 Plaenert Drive<br><br>PR 48 | 2 | 250 HP VFD Motor Starter with Solid State bypass | |
| | 2 | 300 HP RVSS Motor Starter with bypass Contactor | |
| | 1 | 480 Volt Motor Control Center - Allen Bradley | |
| | 1 | 480 Volt Power Switchgear - Square D | |
| | 2 | Power Logic Circuit Monitors, Square D | |
| | 2 | 480V Main Breaker (3200 amp frame) | A |
| | 1 | 480V Tie Breaker (3200 amp frame) | A |
| | 4 | 480V Motor Feeder Breaker (800 amp frame) | A |
| | 2 | 480V MCC Feeder Breaker (800 amp frame) | A |
| | 1 | 480V Generator Breaker (3200 amp frame) | A |
| | | | |
| Pumping Station 9<br>4612 Larsen Beach Road<br>McFarland<br><br>PR 49 | 3 | 480V, Square D PowerPacT R, 600A, Micrologic Trip Unit; Main 1, Tie, Generator | A |
| | 2 | Square D Power Logic | |
| | 3 | 480V Reduced Voltage Motor Starter | |

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|---|---|---|---|
| | 1 | 600HP VFD, ABB ACS880-37 | |
| Pumping Station 10 110 Regas Road<br><br>PR 50 | 1 | 600 HP VFD Motor Starter with Solid State bypass. | |
| | 1 | 600 HP Solid State Motor Starter w/ bypass Contactor | |
| | 1 | 480 Volt Motor Control Center - Square D | |
| | 1 | 480 Volt Power Switchgear - Square D | |
| | 2 | Power Logic Circuit Monitors, Square D | |
| | 2 | 480V Main Breaker (3200 amp frame) | A |
| | 1 | 480V Tie Breaker (3200 amp frame) | A |
| | 3 | 480V Motor Feeder Breaker (1600 amp frame) | A |
| | 2 | 480V MCC Feeder Breaker (800 amp frame) | A |
| | 2 | 480V Spare Feeder Breaker (1600 amp frame) | A |
| | 4 | Allen Bradley, 825-P Motor Protection Relay | |
| | | | |
| Pumping Station 11 4760 East Clayton Road<br><br>PR 51 | 2 | 250 HP VFD Motor Starter | |
| | 2 | 250 HP RVSS Motor Starter | |
| | 1 | 480 Volt Motor Control Center - Allen Bradley | |
| | 1 | 480 Volt Power Switchgear - Square D | |
| | 2 | 5000 Power Monitors – Allen Bradley | |
| | 2 | 480V Main Breaker (2000 amp frame) | A |
| | 1 | 480V Tie Breaker (2000 amp frame) | A |
| | 4 | 480V Motor Feeder Breaker (800 amp frame) | A |
| | 2 | 480V MCC Feeder Breaker (800 amp frame) | A |
| | 1 | 480V Generator Breaker (2000 amp frame) | A |
| | | | |
| Pumping Station 12 2739 Fitchrona Road<br><br>PR 52 | 2 | 200 HP VFD Motor Starter | |
| | 2 | 200 HP RVSS Motor Starter | |
| | 1 | 480 Volt Motor Control Center - Allen Bradley | |
| | 1 | 480 Volt Power Switchgear - Square D | |
| | 2 | 5000 Power Monitors – Allen Bradley | |
| | 2 | 480V Main Breaker (2000 amp frame) | A |
| | 1 | 480V Tie Breaker (2000 amp frame) | A |
| | 4 | 480V Motor Feeder Breaker (800 amp frame) | A |
| | 2 | 480V MCC Feeder Breaker (800 amp frame) | A |
| | 1 | 480V Generator Breaker (2000 amp frame) | A |
| | | | |
| Pumping Station 13 3634 Amelia Earhart Drive<br><br>PR 53 | 3 | Square D Masterpact NW16H3, 1600A Frame, 480 VAC, Micrologic 6.0P Trip Unit; Utility Main Service 1, M2-Generator, and Tie breakers | A |
| | 5 | Pumps: Square D Masterpact NW08H3, 800A Frame, 480 VAC, Micrologic 6.0P Trip Unit; Pumps A, Pump B, Pump C, MCC Main Breaker 1, and MCC Main Breaker 2 | A |
| | 3 | 125 HP VFD, Square D ATV680C | |
| | 1 | Allen Bradley Power Monitor 5000 | |
| | | | |

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|---|---|---|---|
| Pumping Station 14<br>5000 School Road<br><br>PR 54 | 3 | Square D Masterpact NW16H3, 1600A Frame, 480 VAC, Micrologic 6.0P Trip Unit; Utility Main Service 1, M2-Generator, and Tie breakers | A |
| | 5 | Pumps: Square D Masterpact NW08H3, 800A Frame, 480 VAC, Micrologic 6.0P Trip Unit; Pumps A, Pump B, Pump C, MCC Main Breaker 1, and MCC Main Breaker 2 | A |
| | 3 | 125 HP VFD, Square D ATV680C | |
| | 1 | Allen Bradley Power Monitor 5000 | |
| | | | |
| Pumping Station 15<br>2115 Allen Blvd<br>Middleton<br><br>PR 55 | 3 | 125 HP VFD Motor Starter | |
| | 1 | 480 Volt Motor Control Center - Allen Bradley | |
| | 1 | 480 Volt Power Switchgear - Square D | |
| | 2 | 5000 Power Monitors – Allen Bradley | |
| | 2 | 480V Main Breaker (800 amp frame) | A |
| | 1 | 480V Tie Breaker (800 amp frame) | A |
| | 3 | 480V Motor Feeder Breaker (800 amp frame) | A |
| | 2 | 480V MCC Feeder Breaker (800 amp frame) | A |
| | 1 | 480V Generator Breaker (800 amp frame) | A |
| | | | |
| Pumping Station 16<br>1301 North Gammon Road<br>Middleton<br><br>PR 56 | 2 | S&C 13.8 kV Fuse Disconnect - 125E Fuse | A |
| | 2 | 13.8/2.4 kV, 1500/2250 kVA Transformer | |
| | 2 | 2.4 kV Main ACB - Main and Emergency Breaker | C |
| | 6 | G.E. IFC77 Ø Overcurrent Relay | D |
| | 2 | G.E. NGV Under voltage Relay | D |
| | 2 | G.E. ICR53 Ø Sequence Relay | D |
| | 2 | G.E. IAV51 Overvoltage Relay | D |
| | 3 | 2.4 kV Reduced Voltage Motor Starter | |
| | 1 | 480V Main Breaker - MCC | |
| | | | |
| Pumping Station 17<br>407 Bruce Street<br>Verona<br><br>PR 57 | 1 | 800A Main Breaker - Square D 480 V MASTERPACT NW08N | |
| | 1 | 800A Main (Gen) Breaker - Square D 480 V MASTERPACT NW08N | |
| | 1 | 800A Tie Breaker - Square D 480 V MASTERPACT NW08N | |
| | 2 | Multilin PQM II - Power Quality Meter, GE | |
| | 2 | Main Bus Power Monitoring Relays, Agastat | |
| | 3 | 175 A Feeder Breakers – Square D 480 V KCP-34-175 | |
| | 3 | Adjustable Frequency Drives, ABB | |
| | 1 | 350 kW Generator, Onan | |

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|---|---|---|---|
| Pumping Station 18<br>1100 East Broadway<br>Monona<br><br>PR 58 | 1 | 450 HP RVSS Motor Starter | |
| | 1 | 450 HP VFD Motor Starter with RVSS Bypass | |
| | 1 | 450 HP VFD Motor Starter | |
| | 2 | 125 HP VFD Motor Starter | |
| | 1 | 480 Volt Motor Control Center - Allen Bradley | |
| | 2 | 480 Volt Power Switchgear - Square D | |
| | 2 | 5000 Power Monitors – Allen Bradley | |
| | 1 | 480V Main Breaker (4000 amp frame) | A |
| | 1 | 480V Generator Breaker (4000 amp frame) | A |
| | 1 | 480V Generator Tie Breaker (4000 amp frame) | A |
| | 1 | 480V Tie Breaker (4000 amp frame) | A |
| | 1 | 480V Load Bank Feeder Breaker (3200 amp frame) | A |
| | 3 | 480V Motor Feeder Breaker (2000 amp frame) | A |
| | 1 | 480V Motor Feeder Breaker (1600 amp frame) | A |
| | 2 | 480V Motor Feeder Breaker (800 amp frame) | A |
| | 2 | 480V MCC Feeder Breaker (800 amp frame) | A |
| | 1 | 480V 1500kW Generator, Cummins | |

# Project Requirements

PR 1 - Intent

These Project Requirements summarize the general requirements for furnishing the labor, materials, and equipment necessary to test and calibrate the described relays, circuit breakers, and electrical equipment for the Madison Metropolitan Sewerage District, Madison, Wisconsin, hereinafter called the "Owner".

PR 2 – Site Data

The work sites will be located within or near the city limits of Madison, Wisconsin.

PR 3 - Work and Materials/Maintenance Work - By Contractor

A. In general, all work and materials shall be furnished by the Contractor.

B. All expendable tools, materials, and miscellaneous equipment needed to perform required maintenance work or replacing defective or worn parts shall be included as part of the base bid for the work outlined unless specified otherwise.

C. All worn, defective, or replacement materials replaced at the direction of the Owner or Owner's representative shall be ordered, delivered, furnished, and installed by the Contractor. The Contractor shall be compensated for these material items at a rate equal to Supplier's invoice (sale to Contractor) with all contractor-supplier discounts passed on to the Owner, with mark-up as allowed by General Conditions. Contractor shall receive approval in writing from Owner or Owner's representative prior to ordering materials. Written approval shall include estimated cost of purchased parts when practical.

D. Any corrective maintenance must be recommended to and approved by the Owner and/or Owner's engineer with an estimate of any additional cost items in writing for any work.

E. All maintenance work on existing equipment shall be performed by or under the direct supervision of a maintenance group normally engaged in the performance of electrical maintenance work. The maintenance group shall meet the requirements of Section 16570. Work shall conform to the appropriate sections of the attached specification sections 16570 - 16584.

F. The Owner may elect to furnish any or all replacement parts for Contractor installation. No additional compensation shall be allowed for Contractor installation of Owner furnished replacement parts.

PR 4 – Work by Owner/all Station

A. The Owner may elect to perform routine maintenance on other electrical equipment during the same time frame. Interference with Contractor’s work is not anticipated.

B. An Owner's representative will assist the Contractor at all times to provide site access, de-energization, and outage scheduling. This Contractor shall provide all labor required to perform the specified testing work.

PR 5 – Manual and Drawings

A. Equipment manuals and drawings are available for inspection prior to bidding at the offices of Madison Metropolitan Sewage District, 1610 Moorland Road, Madison, Wisconsin 53713.

B. Available equipment manuals and drawings will be loaned to the successful bidder during the project work period. Manuals must be returned to the Owner upon completion of the project. Manuals should be kept in good condition.

C. Final relay settings will be provided as listed in the equipment settings summary sheets. Final relay settings and coordination curves will be provided to the successful bidder.

PR 6 - Work Schedules and Equipment Outages

A. The work of this and other divisions may require partial or complete system interruption of the daily operation of the pumping station or substations; however, the Owner reserves the right to schedule outages. An Owner's representative will be present for load transfer and de-energization.

B. Contractor shall assume that contract work can be performed during the normal work week. The Owner may need to schedule the transfer of load such that overtime or holiday work is required. Contractor shall provide normal, overtime, and holiday hourly rates for labor costs such that a price adder can be computed for overtime and holiday work required.

C. It is essential that the down-time at the Treatment Plant and Pumping Stations be held to a minimum.

PR 7 - Description of Work - 13.8 kV Nine Springs WWTP Substation (Switchgear Panel H1)

A. For the following transformers, visually inspect the tank, clean and tighten connections, inspect and clean bushings, perform oil dielectric strength and chemical analysis tests, test and label unit for PCB content, if not labeled.

    1. Two (2) Westinghouse transformers, 10/14 MVA OA/FA 55/65° C, 13,800 volt delta primary, 4,160Y/2,400 volt grounded wye secondary oil insulated with fans.

B. Perform an infrared scan on the main substation connections and incoming bus work (for plant).

C. Perform an infrared scan on the metal clad switchgear lineup H1-1 and H1-2.

D. Perform routine maintenance on the metal clad switchgear and switchgear components. Clean, trip test, megger, and tighten connections on two (2) draw-out circuit breakers.

E. Perform routine maintenance on the 48 volt, NI-CAD battery and battery charger. Test batteries for proper charge. Check battery for proper electrolyte levels. Fill to proper levels if necessary. Notify Electrical Maintenance Supervisor of any weak or failed batteries. Test for proper operation of battery charger.

F. Perform routine maintenance on the ASCO transfer switch. Test for proper operation.

G. Perform routine maintenance on the following magnetic air circuit breakers:

1. Two (2) Westinghouse Type 150-DHP-750C, 1200 amp, 15 kV maximum volts, magnetic air circuit breakers.

H. Test and calibrate the following relays that control the magnetic air circuit breakers:

1. For H1-1, Transformer #1:

i. Three (3) Westinghouse CO-8 phase time overcurrent relays with instantaneous trip.

ii. One (1) Westinghouse CO-6 ground time overcurrent relay.

iii. One (1) Westinghouse CO-6 secondary ground time overcurrent relay.

iv. Three (3) Westinghouse HU transformer differential relays with instantaneous trip.

2. For H1-2, Transformer #2:

i. Three (3) Westinghouse CO-8 phase time overcurrent relays with instantaneous trip.

ii. One (1) Westinghouse CO-6 ground time overcurrent relay.

iii. One (1) Westinghouse CO-6 secondary ground time overcurrent relay.

iv. Three (3) Westinghouse HU transformer differential relays with instantaneous trip.

I. Thoroughly clean, check, and test lightning arresters on incoming feeds for H1-1 (3) and H1-2 (3). This will require the Contractor to coordinate with the utility (MG&E) and the District's electrical staff to de-energize the incoming feeds one at a time without an outage to the plant. Check arresters for signs of damage and tracking. Thoroughly clean any contaminants off of the arresters. Arresters should be disconnected from circuit and field tested per manufacturers recommendations.

PR 8 – Description of Work – Main Switchgear Panel S1

A. Perform an infrared scan on the metal clad switchgear lineup S1-1 thru S1-13.

B. Perform routine maintenance on the metal clad switchgear and switchgear components. Clean, trip test, megger, and tighten connections on thirteen (13) draw-out circuit breakers.

C. Perform routine maintenance on the ASCO transfer switch.

D. Perform routine maintenance on the following magnetic air circuit breakers:

1. Main Breakers:

i. Two (2) Westinghouse Type 50-DHP-250, 2000 amps continuous, 5 kV magnetic air circuit breakers.

2. Tie Breaker:

i. One (1) Westinghouse Type 50-DHP-250, 2000 amps continuous, 5 kV magnetic air circuit breaker.

3. Feeder Breakers:
    i. Thirteen (13) Westinghouse Type 50-DHP-250, 1200 amps continuous, 5 kV magnetic air circuit breakers.

E. Test and calibrate the following relays that control the magnetic air circuit breakers:
1. For main breaker S1-1:
    i. Three (3) Westinghouse CO-8 phase time overcurrent relays.
    ii. One (1) Westinghouse CO-6 ground time overcurrent relay.
    iii. One (1) Westinghouse CWC directional ground relay.
    iv. One (1) Westinghouse CV-2 short time under voltage relay.
    v. One (1) Westinghouse CVQ phase sequence and under voltage relay.
2. For main breaker S1-2:
    i. Three (3) Westinghouse CO-8 phase time overcurrent relays.
    ii. One (1) Westinghouse CO-6 ground time overcurrent relay.
    iii. One (1) Westinghouse CWC directional ground relay.
    iv. One (1) Westinghouse CV-2 short time under voltage relay.
    v. One (1) Westinghouse CVQ phase sequence and under voltage relay.
3. For tie breaker S1-3:
    i. Three (3) Westinghouse CO-11 phase time overcurrent relays with instantaneous trip.
    ii. One (1) Westinghouse SC ground time overcurrent relay.
4. For feeder breakers S1-4 thru S1-13:
    i. Thirty (30) Westinghouse CO-11 phase time overcurrent relays with instantaneous trip.
    ii. Ten (10) Westinghouse SC ground time overcurrent relays.

<u>PR 9 – Description of Work – Unit Substation U1</u>

A. Perform routine maintenance on the following transformers:
1. Two (2) Square D, Power-Cast, 1000 kVA, 4160-480Y/277 volt, AA/FM, 80°C transformers.

B. Perform routine maintenance on the following circuit breakers:
1. Main Breakers:
    i. Two (2) Square D, DS-632, 3200A, 480 volt circuit breakers.
2. Tie Breaker:
    i. One (1) Square D, DS-632, 3200A, 480 volt circuit breaker.

3. Feeder Breakers:
    i. Three (3) Square D, DS-206E, 800A, 480 volt circuit breakers.
4. Spare Breakers:
    i. One (1) Square D, DS-206E, 800A, 480 volt circuit breakers.

C. Perform routine maintenance on the following switches:
1. Two (2) Square D, Load Current Interrupter Switch, 4.76 kV, 600 Amps, Switch Number 44036-325-50

PR 10 Description of Work – Unit Substation U2

A. Perform routine maintenance on the following transformers:
1. Two (2) Square D, Class 7240, Liquid Filled, 1500 kVA, 4160-480Y/277 volt, OA/FA, 65°C transformers.

B. Perform routine maintenance on the following circuit breakers:
1. Main Breakers:
    i. Two (2) Square D, DS-632, 3200A, 480 volt circuit breakers.
2. Tie Breaker:
    i. One (1) Square D, DS-632, 3200A, 480 volt circuit breaker.
3. Feeder Breakers:
    i. Six (6) Square D, DS-206E, 800A, 480 volt circuit breakers.
4. Spare Breakers:
    i. Zero (0) Square D, DS-206E, 800A, 480 volt circuit breakers.

C. Perform routine maintenance on the following switches:
1. Two (2) Square D, Load Current Interrupter Switch, 4.76 kV, 600 Amps, Switch Number 44036-325-50

PR 11 Description of Work – Unit Substation U3

A. Perform routine maintenance on the following transformers:
1. Two (2) ABB, Power-Cast, 1500 kVA, 4160-480Y/277 volt, AA/FM, 80°C transformers.

B. Perform routine maintenance on the following circuit breakers:
1. Main Breakers:
    i. Two (2) Cutler-Hammer, MDS-632, 3200A, 480 volt circuit breakers.
2. Tie Breaker:
    i. One (1) Cutler-Hammer, MDS-632, 3200A, 480 volt circuit breaker.
3. Feeder Breakers:

i. Three (3) Cutler-Hammer, MDS-616, 1600A, 480 volt circuit breaker.

4. Feeder Breakers:
    i. Seven (7) Cutler-Hammer, MDS-608, 800A, 480 volt circuit breaker.
5. Spare Breakers:
    i. One (1) Cutler-Hammer, MDS-608, 800A, 480 volt circuit breaker.

C. Perform routine maintenance on the following Breakers:
1. Two (2) Cutler-Hammer, Medium Voltage Vacuum Circuit Breaker, 4.16 kV, 1200 Amp, Frame/Model 50 VCP-W-25C

PR 12 Description of Work – Unit Substation U6

A. Perform routine maintenance on the following primary circuit breakers:
1. Primary Circuit Breakers:
    i. Two (2) 4160V Circuit Breaker, Square D, VR, VACUUM, Main 1 and Main 2.

B. Perform routine maintenance on the following transformers:
1. Two (2) 4160V Transformer, Square D Power Cast II, HV 4160, LV 408Y/277V.

C. Perform routine maintenance on the following circuit breakers:
1. Main Circuit Breakers:
    i. Three (3) 480V Circuit Breaker, 2000 Amp, Square D Masterpact NW20H3, Micrologic 6.0 P; Main 1, Main 2, and Tie.
2. Feeder Circuit Breakers:
    i. Five (5) 480V Circuit Breaker, 800 Amp, Square D Masterpact NW08H3, Micrologic 6.0 P; MCC P41 (ACB4), MCC P42 (ACB4), MCC P71 (Effluent), MCC P72 (Effluent), DP48 (U06).

PR 15 Description of Work – Unit Substation U14

A. Perform routine maintenance on the following primary fused disconnects:
1. Primary Disconnects:
    i. Two (2) Square D, 5 kV fused air interrupter switch.

B. Perform routine maintenance on the following transformers:
1. Two (2) 1500 kVA 4160-480Y/277 volt, self-cooled transformers.

C. Perform routine maintenance on the following circuit breakers:
1. Main Breaker:
    i. Two (2) Square D, 480 volt circuit breakers.
2. Tie Breaker:

i. One (1) Square D, 480 volt circuit breaker.

3. Feeder Breakers:

i. Two (2) Square D, 480 volt circuit breakers.

PR 16 Description of Work – Unit Substation U15

A. Perform routine maintenance on the following transformers:

1. Two (2) Square D, Power-Cast, 1500 kVA, 4160-480Y/277 volt, AA/FA, 80°C transformers.

B. Perform routine maintenance on the following circuit breakers:

1. Main Breakers:

i. Two (2) Square D, DS-632, 3200A, 480 volt circuit breakers.

2. Tie Breaker:

i. One (1) Square D, DS-632, 3200A, 480 volt circuit breaker.

3. Feeder Breakers:

i. Four (4) Square D, DS-416H, 1600A, 480 volt circuit breakers.

4. Spare Breakers:

i. One (1) Square D, DS-416H, 1600A, 480 volt circuit breakers.

C. Perform routine maintenance on the following switches:

1. Two (2) Square D, Load Current Interrupter Switch, 4.76 kV, 600 Amps, Switch Number 44036-325-50

PR 17 Description of Work – Medium Voltage Starter Panel M51 (West Blower Building)

A. Perform routine maintenance on the following primary disconnects:

1. Main Disconnects:

i. Two (2) 4.16 kV disconnect switches.

2. Tie Disconnect:

i. One (1) 4.16 kV disconnect switch.

B. Test and calibrate the following relays that control the motor starters:

1. Three (3) Westinghouse ITH instantaneous overcurrent relays.

C. Perform routine maintenance on the following 4.16 kV motor starters:

1. Three (3) 4.16 kV motor starters.

PR 18 Description of Work – Medium Voltage Starter Panel M71 (Effluent Pumping Station)

A. Perform routine maintenance on the following primary disconnect switches:

1. Primary Disconnect Switches:

i. Two (2) 4.16 kV disconnect switches.

2. Tie Disconnect Switch:

i. One (1) 4.16 kV disconnect switch.

B. Test and calibrate the following relays that control the motor starters:

1. Five (5) Westinghouse ITH instantaneous overcurrent relays.

C. Perform routine maintenance on the following 4.16 kV motor starters:

1. Five (5) 4.16 kV motor starters.

PR 19 Description of Work – Switchgear Panel 582 (east Blower Building)

A. Perform routine maintenance on the following primary disconnects:

1. Main Disconnects:

i. Two (2) 4.16 kV disconnects.

2. Tie Disconnect:

i. One (1) 4.16 kV disconnect.

3. Feeder Fused Disconnects:

i. Four (4) 4.16 kV fused disconnects.

B. Perform routine maintenance on the following 4.16 kV motor starters:

1. Six (6) 4.16 kV, motor starters.

PR 41 Description of Work – Pumping Station 1 (104 North 1st Street)

A. Perform routine maintenance on the following circuit breakers and trip units:

1. Main Breakers:

i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 3200A, 480 volt circuit breakers.

2. Tie Breaker:

i. One (1) Square D, MASTERPACT with Micrologic Electronic Trip, 3200A, 480 volt circuit breakers.

3. Motor Feed Breakers:

i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 1600A, 480 volt circuit breakers.

4. Spare Breakers:

i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 1600A, 480 volt circuit breakers.

5. MCC Feed Breakers:

i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 800A, 480 volt circuit breakers.

PR 42 Description of Work – Pumping Station 2 (833 West Washington Ave.)

A. Perform routine maintenance on the following circuit breakers and trip units:

1. Main Breakers:

i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 3200A, 480 volt circuit breakers.

2. Tie Breaker:

i. One (1) Square D, MASTERPACT with Micrologic Electronic Trip, 3200A, 480 volt circuit breakers.

3. Motor Feed Breakers:

i. Four (4) Square D, MASTERPACT with Micrologic Electronic Trip, 1600A, 480 volt circuit breakers.

4. Spare Breakers:

i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 1600A, 480 volt circuit breakers.

5. MCC Feed Breakers:

i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 800A, 480 volt circuit breakers.

PR 43 Description of Work – Pumping Station 3 (Nine Springs Waste Water Treatment Plant)

A.

PR 44 Description of Work – Pumping Station 4 (522 John Nolen Drive)

A. Perform routine maintenance on the following main fused disconnect:

1. Main Breakers:

i. Three (3) 480V, Eaton Magnum DS, MDS608, 800 Amp, 480 VAC with Digitrip 520M; Main, Tie, and Generator Breakers.

PR 45 Description of Work – Pumping Station 5 (5221 Lake Mendota Dr.)

A. Perform routine maintenance on the following transformers (by MG&E):

1. Two (2) 150 kVA, 13.8 kV/480 volt transformers.

B. Perform routine maintenance on the following circuit breakers:

1. Main Breakers:

i. Two (2) Square D 200 amp circuit breakers.

2. Tie Breakers:

i. One (1) Square D 200 amp circuit breakers.

3. Feeder Breakers:
    i. Three (3) Square D 100 amp rated, 600 volt circuit breakers.

C. Perform routine maintenance on the following power contactors:
    1. Main Contactors:
        i. Two (2) Square D size 4 contactors.
    2. Tie Contactor:
        i. One (1) Square D size 4 contactor.

D. Perform routine maintenance on the following adjustable frequency drives:
    1. Three (3) 50 horsepower frequency drives.

E. Perform routine maintenance on the following motors:
    1. Three (3) 50 horsepower, 480 volt motors.

PR 46 Description of Work – Pumping Station 6 (402 Walter Street)

A. Perform routine maintenance on the following circuit breakers and trip units:
    1. Main Breakers:
        i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 1600A, 480 volt circuit breakers.
    2. Tie Breaker:
        i. One (1) Square D, MASTERPACT with Micrologic Electronic Trip, 1600A, 480 volt circuit breakers.
    3. Motor Feed Breakers:
        i. Four (4) Square D, MASTERPACT with Micrologic Electronic Trip, 800A, 480 volt circuit breakers.
    4. Generator Breaker:
        i. One (1) Square D, MASTERPACT with Micrologic Electronic Trip, 1600A, 480 volt circuit breakers.
    5. MCC Feed Breakers:
        i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 800A, 480 volt circuit breakers.

PR 47 Description of Work – Pumping Station 7 (6300 Metropolitan Lane, Monona)

A. Perform routine maintenance on the following circuit breakers and trip units:
    1. Main Breakers:
        i. Three (3) 480V, Square D Masterpact NW20H3, 2000A Frame, Micrologic 6.0P Trip Unit; Main 1, Main 2, and Tie breakers.
    2. Feeder Breakers:

i. Nine (9) 480V, Square D Masterpact NW08H3, 800A Frame, Micrologic 6.0P Trip Unit; Generator, Pump 1, Pump 2, Pump 3, Pump 4, MCC feed 1, MCC Feed 2, Spare 1, and Spare 2.

PR 48 Description of Work – Pumping Station 8 (967 Plaenert Drive)

A. Perform routine maintenance on the following circuit breakers and trip units:

1. Main Breakers:
    i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 3200A, 480 volt circuit breakers.
2. Tie Breaker:
    i. One (1) Square D, MASTERPACT with Micrologic Electronic Trip, 3200A, 480 volt circuit breakers.
3. Generator Breaker:
    i. One (1) Square D, MASTERPACT with Micrologic Electronic Trip, 3200A, 480 volt circuit breakers.
4. Motor Feed Breakers:
    i. Four (4) Square D, MASTERPACT with Micrologic Electronic Trip, 800A, 480 volt circuit breakers.
5. MCC Feed Breakers:
    i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 800A, 480 volt circuit breakers.

PR 49 Description of Work – Pumping Station 9

A. Perform routine maintenance on the following circuit breakers and trip units:

1. Main Breakers:
    i. Three (3) 480V, Square D PowerPacT R, 600A, Micrologic Trip Unit; Main 1, Tie, Generator

PR 50 Description of Work – Pumping Station 10 (110 Regas Road)

B. Perform routine maintenance on the following circuit breakers and trip units:

1. Main Breakers:
    i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 3200A, 480 volt circuit breakers.
2. Tie Breaker:
    i. One (1) Square D, MASTERPACT with Micrologic Electronic Trip, 3200A, 480 volt circuit breakers.
3. Motor Feed Breakers:

i. Three (3) Square D, MASTERPACT with Micrologic Electronic Trip, 1600A, 480 volt circuit breakers.

4. Spare Breakers:

    i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 1600A, 480 volt circuit breakers.

5. MCC Feed Breakers:

    i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 800A, 480 volt circuit breakers.

PR 51 Description of Work – Pumping Station 11 (4760 East Clayton Road)

A. Perform routine maintenance on the following circuit breakers and trip units:

1. Main Breakers:

    i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 2000A, 480 volt circuit breakers.

2. Tie Breaker:

    i. One (1) Square D, MASTERPACT with Micrologic Electronic Trip, 2000A, 480 volt circuit breakers.

3. Generator Breaker:

    i. One (1) Square D, MASTERPACT with Micrologic Electronic Trip, 2000A, 480 volt circuit breakers.

4. Motor Feed Breakers:

    i. Four (4) Square D, MASTERPACT with Micrologic Electronic Trip, 800A, 480 volt circuit breakers.

5. MCC Feed Breakers:

    i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 800A, 480 volt circuit breakers.

PR 52 Description of Work – Pumping Station 12 (2739 Fitchrona Road)

A. Perform routine maintenance on the following circuit breakers and trip units:

1. Main Breakers:

    i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 2000A, 480 volt circuit breakers.

2. Tie Breaker:

    i. One (1) Square D, MASTERPACT with Micrologic Electronic Trip, 2000A, 480 volt circuit breakers.

3. Generator Breaker:

i. One (1) Square D, MASTERPACT with Micrologic Electronic Trip, 2000A, 480 volt circuit breakers.

4. Motor Feed Breakers:

    i. Four (4) Square D, MASTERPACT with Micrologic Electronic Trip, 800A, 480 volt circuit breakers.

5. MCC Feed Breakers:

    i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 800A, 480 volt circuit breakers.

PR 53 Description of Work – Pumping Station 13 (3634 Amelia Earhart Drive)

A. Perform routine maintenance on the 480Volt, Switchgear in accordance with Section 16572.

    1. Perform routine maintenance on the following 480 volt circuit breakers:

        i. Three (3) x Square D Masterpact NW16H3, 1600A Frame, 480 VAC, Micrologic 6.0P Trip Unit; Utility Main Service 1, M2-Generator, and Tie breakers

        ii. Five (5) x Pumps: Square D Masterpact NW08H3, 800A Frame, 480 VAC, Micrologic 6.0P Trip Unit; Pumps A, Pump B, Pump C, MCC Main Breaker 1, and MCC Main Breaker 2

PR 54 Description of Work – Pumping Station 14 (5000 School Road)

A. Perform routine maintenance on the 480Volt, Switchgear in accordance with Section 16572.

    1. Perform routine maintenance on the following 480 volt circuit breakers:

        i. Three (3) x Square D Masterpact NW16H3, 1600A Frame, 480 VAC, Micrologic 6.0P Trip Unit; Utility Main Service 1, M2-Generator, and Tie breakers

        ii. Five (5) x Pumps: Square D Masterpact NW08H3, 800A Frame, 480 VAC, Micrologic 6.0P Trip Unit; Pumps A, Pump B, Pump C, MCC Main Breaker 1, and MCC Main Breaker 2

PR 55 Description of Work – Pumping Station 15 (2115 Allen Blvd, Middleton)

A. Perform routine maintenance on the following circuit breakers and trip units:

    1. Main Breakers:

        i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 800A, 480 volt circuit breakers.

    2. Tie Breaker:

        i. One (1) Square D, MASTERPACT with Micrologic Electronic Trip, 800A, 480 volt circuit breakers.

    3. Generator Breaker:

i. One (1) Square D, MASTERPACT with Micrologic Electronic Trip, 800A, 480 volt circuit breakers.

4. Motor Feed Breakers:

i. Three (3) Square D, MASTERPACT with Micrologic Electronic Trip, 800A, 480 volt circuit breakers.

5. MCC Feed Breakers:

i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 800A, 480 volt circuit breakers.

PR 56 Description of Work – Pumping Station 16 (1301 North Gammon Road)

A. Perform routine maintenance on the following 13.8 kV Switches.

1. Two (2) S&C 13.8 kV Fuse Disconnect Switches - 125E Fuse

B. Perform routine maintenance on the following transformers:

1. Two (2) 13.8/2.4 kV, 1500-2250 kVA, AA/AF, VaporTran transformers.

C. Perform routine maintenance on the following circuit breakers:

1. Incoming Main and Emergency Breakers:

i. Two (2) 2.4 kV circuit breakers.

2. Incoming 480 volt motor control center main breaker:

i. One (1) 480 volt, General Electric Versa Trip Mod 2, 400A, Cat. No. V47958A circuit breaker.

D. Test and calibrate the following relays that control the circuit breakers:

1. For incoming main and emergency breakers:

i. Six (6) General Electric IFC77 phase time overcurrent relays with instantaneous trip.

2. For main bus and auto-transfer scheme:

i. Two (2) General Electric NGV under voltage relays.

ii. Two (2) General Electric ICR53 phase sequence and under voltage relays.

iii. Two (2) General Electric IAV51 overvoltage relays.

E. Test and calibrate the following relays that protect the pump motors:

1. For pumps A,B, and C, motor protection:

i. Three (3) motor protection relays.

PR 57 Description of Work – Pumping Station 17 (407 Bruce Street, Verona)

A. Perform routine maintenance on the following circuit breakers and trip units:

1. Main Breaker:

i. One (1) Square D, MASTERPACT NW08N with Micrologic Electronic Trip, 800A, 480 volt circuit breakers.

2. Tie Breaker:

i. One (1) Square D, MASTERPACT NW08N with Micrologic Electronic Trip, 800A, 480 volt circuit breakers.

3. Generator Breaker:

i. One (1) Square D, MASTERPACT NW08N with Micrologic Electronic Trip, 800A, 480 volt circuit breakers.

PR 58 Description of Work – Pumping Station 18 (1100 East Broadway, Monona)

A. Perform routine maintenance on the following circuit breakers and trip units:

a. Main Breakers:

i. One (1) Square D, MASTERPACT with Micrologic Electronic Trip, 4000A, 480 volt circuit breakers.

b. Generator Breaker:

i. One (1) Square D, MASTERPACT with Micrologic Electronic Trip, 4000A, 480 volt circuit breakers.

c. Generator Tie Breaker:

i. One (1) Square D, MASTERPACT with Micrologic Electronic Trip, 4000A, 480 volt circuit breakers.

d. Tie Breaker:

i. One (1) Square D, MASTERPACT with Micrologic Electronic Trip, 4000A, 480 volt circuit breakers.

e. Load Bank Feed Breaker:

i. One (1) Square D, MASTERPACT with Micrologic Electronic Trip, 3200A, 480 volt circuit breakers.

f. Motor Feed Breaker:

i. Three (3) Square D, MASTERPACT with Micrologic Electronic Trip, 2000A, 480 volt circuit breakers.

g. Motor Feed Breaker:

i. One (1) Square D, MASTERPACT with Micrologic Electronic Trip, 1600A, 480 volt circuit breakers.

h. Motor Feed Breaker:

i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 800A, 480 volt circuit breakers.

i. MCC Feed Breakers:

i. Two (2) Square D, MASTERPACT with Micrologic Electronic Trip, 800A, 480 volt circuit breakers.

# Section 16570
# Electrical Equipment Maintenance

PART I - GENERAL

The requirements of these Contract Documents, including the Bid, Project Requirements, General Conditions, Supplementary Conditions, and/or Division 1 - General Requirements, apply to this section except as modified herein.

1.01 DESCRIPTION

A. Work Included:

1. Test Instrument Traceability
2. Test Reports
3. Safety and Precautions
4. Codes and Regulations
5. Site Visit
6. Guarantee
7. Drawings
8. Coordination of Work

B. It is the intent of these specifications to specify the minimum requirements of inspection, test, and maintenance work on the electrical equipment items as covered in technical subsections as follows:

1. Metal Clad Switchgear - 16572 (includes requirements for medium voltage circuit breakers)
2. Relay Testing and Calibration - 16574
3. Substation Transformers - 16576
4. Automatic Transfer Switch - 16580
5. Low Voltage Power Circuit Breakers - 16581
6. Infrared Scanning of Electrical Equip. - 16583

C. The Contractor shall be a recognized independent testing laboratory and shall perform inspections, tests, and maintenance as herein specified.

D. The Contractor shall supply a source to test power to the test laboratory at each test site and shall notify the testing laboratory when equipment becomes available for tests. Work shall be coordinated to minimize outages.

E. The Engineer will supply a complete set of electrical one-line drawings and settings summary to the Contractor as may be required.

F. The Contractor shall notify the Owner and the Engineer prior to commencement of any testing.

G. The testing laboratory shall be responsible for implementing all final settings and adjustments on protective devices and tap changers in accordance with Engineer's specified values.

H. Any system, material, or workmanship which is found defective on the basis of acceptance tests shall be reported directly to the Engineer.

I. The testing laboratory shall maintain a written record of all tests and upon completion of project, assemble and certify a final test report. Report shall be complete in all respects and to the satisfaction of the Engineer.

J. Payment to Contractor will be made upon completion of all testing, and approval of the final test report by the Engineer. Separate payment will be made for additional work performed by the Contractor upon satisfactory completion of that work.

PART II - PRODUCTS

2.01 MATERIALS

A. Provide materials as applicable.

PART III - EXECUTION

3.01 TEST INSTRUMENT TRACEABILITY

A. The testing laboratory shall have a calibration program which maintains all applicable test instrumentation within rated accuracy.

3.02 TEST REPORTS

A. The test report shall include the following:

1. Summary of project
2. Description of equipment tested
3. Description of test
4. List of test equipment used in calibration
5. Test results
6. Conclusions and recommendations
7. Appendix, including appropriate test forms

B. The test report shall be bound, its contents certified, and one (1) copy of the completed report shall be submitted to the Engineer no later than thirty (30) days after completion of project unless directed otherwise.

C. The Contractor is responsible for producing an electronic version of the 2025 Maintenance Report. The report shall be delivered in Portable Document Format (PDF). The file shall open to the cover page of the 2025 Maintenance Report, with bookmarks to the left.

## 3.03 SAFETY AND PRECAUTIONS

A. Safety practices shall include, but not be limited to, the most recent requirements of the Occupational Safety and Health Administration, the National Electrical Code, the National Electrical Safety Code, NFPA-70E, and applicable state and local safety operating procedures.

B. Circuits operating in excess of 600 volts between conductors shall have de-energized conductors shorted to a ground device approved for the purpose.

C. Contractor shall provide and maintain all safeguards, safety devices, and protective equipment; and shall take any other actions necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the Work covered by the Contract.

D. Contractor shall provide a written copy of their safety policies and procedures to the Owner for review prior to commencing any work.

## 3.04 CODES AND REGULATIONS

A. All inspections, tests, maintenance work, and materials furnished or installed shall comply to the latest applicable requirements of the following codes:

1 National Electrical Manufacturer's Association - NEMA
2. Institute of Electrical and Electronic Engineers - IEEE
3. National Electrical Testing Association - NETA
4. American National Standards Institute - ANSI
5. Insulated Power Cable Engineers Association – IPCEA
6. Recommended Practice for Electrical Equipment Maintenance, NFPA 70B.

3.05 SITE VISIT

A. The Bidder shall visit the work sites prior to submitting a bid to familiarize himself with the general and local conditions, particularly those bearing upon the prosecution of the work and all other matters which can in any way effect the work or the cost thereof under this contract. No extra compensation will be allowed the Contractor for any expense which in the opinion of the Engineer could have been avoided by thorough and complete site inspection prior to bidding.

3.06 GUARANTEE

A. The Contractor shall furnish a warranty for all materials furnished under this contract and workmanship for a period of one (1) calendar year following the date of final acceptance, against defects due to faulty workmanship or materials and agrees to replace same at no expense to the Owner.

3.06 DRAWINGS

A. Copies of manufacturer's equipment drawings, instruction booklets, and service manuals, if available in Owner's files, will be provided to Contractor during the period of scheduled maintenance. All such material shall be returned in good condition to the Owner. Contractor shall be required to obtain all applicable service manuals for remaining equipment items to insure compliance with manufacturer's recommended maintenance methods.

B. The Engineer will provide the Contractor with relay settings to be used for calibration and settings on all protective relays.

3.07 COORDINATION OF WORK

A. The Contractor shall plan all work in close coordination with the Owner to minimize any outages and conflicts.

B. The Contractor shall note in their Bid any areas of maintenance the Contractor deems impractical to perform based on available Contractor equipment and/or permissible outages as allowed by the Owner.

C. A schedule of anticipated outages shall be submitted and approved by the Owner prior to commencing any work.

# Section 16571
# Maintenance of Dry Type Transformers

PART I - GENERAL

The requirements of these Contract Documents, including the Bid, Project Requirements, General Conditions, Supplementary Conditions, and/or Division 1 - General Requirements, apply to this section except as modified herein.

1.01 DESCRIPTION

A. This technical section is a supplement to specification section 16570.

B. The minimum maintenance procedures as outlined below are required on all transformer units included as part of this work.

PART II - PRODUCTS

2.10 MATERIALS

A. Provide materials as specified in the plans.

PART III - EXECUTION

3.01 MAINTENANCE PROCEDURES

A. Inspect equipment grounding to verify all accessible ground connections are clean and tight. Repair any corroded or poorly made ground connections. Ground wires should be no smaller than size 1/0 AWG copper cable, and connections should be made using compression or bolted connectors.

B. Inspect for physical damage.

C. Verify proper operation of auxiliary devices such as fans, indicators, and taps.

D. Clean surge arrester thoroughly. Torque leads and all bolted connections. Megger test to ground; megger test value should read infinity unless internal resistors are used in the manufacture of the lightning arrester. Notify Engineer of any low reading or grounded arresters.

E. The transformer must be de-energized and the covers removed. Clean the transformer core, coils, and enclosure.

F. Lead supports, tap changers and terminal board, bushings and other insulated surfaces should be brushed or wiped clean with a dry cloth. Do not use liquid cleaners.

G. After the transformer has been cleaned, the transformer must be meggered. Three sets of megger readings shall be taken using a 1000 volt megger. Data should be taken at the end of one (1) minute. Test as follows:

1. Connect the low voltage winding to ground and megger between the high voltage winding and ground.

2. Connect the high voltage winding to ground and megger between the low voltage winding and ground.

3. Connect the high and low voltage windings together and megger from both windings to ground.

H. A minimum of 2 megohms per 1000 volts of nameplate rating (one minute reading at 25 degrees centigrade) is the lowest acceptable reading. If the megger reading is low, then the transformer may be wet or it may have deteriorated insulation. If the transformer is wet, it must be dried out per the manufacturer's recommendations. If the insulation is deteriorated, notify Engineer.

I. All connections shall be checked for correct torque value.

J. Inspect core and coils. Check for loose iron, loose coil blocking, and cracked or broken insulators. This should be done immediately after cleaning and before the transformer is meggered. One or two small chips in the porcelain spools under the pressure plate are not objectionable. The spool should not be replaced. Similarly, the porcelain separators between the pancake coils do not require replacement if chipped or cracked on the end. If the coil separators have cracks or chips which extend back far enough to be between pancake coils, then the Engineer must be notified.

K. The ventilating openings of the transformer must be open. If air filters are used, they shall be replaced.

# Section 16572
# Maintenance of Metal Clad Switchgear

PART I - GENERAL

The requirements of these Contract Documents, including the Bid, Project Requirements, General Conditions, Supplementary Conditions, and/or Division 1 - General Requirements, apply to this section except as modified herein.

1.01 DESCRIPTION

A. This technical section is a supplement to specification section 16570.

B. The general maintenance procedures listed in Part III of this specification section shall be followed on all equipment included as part of this work. This includes protective relays, disconnect devices, and air circuit breakers.

C. This section is intended to specify a labor and materials maintenance item with the exception of major replacement parts. For defective items requiring "Notification of the Engineer", a written order will be issued by the Owner or Engineer for Contractor to purchase of said parts in accordance with General Conditions.

D. The intent of the work specified herein will include all Contractor labor required to install replacement parts regardless if parts are supplied by Owner or purchased by Contractor if applicable.

PART II - PRODUCTS

2.01 MATERIALS

A. Provide materials as applicable.

PART III - EXECUTION

3.01 GENERAL MAINTENANCE PROCEDURES

A. The equipment shall be thoroughly cleaned to remove dirt and moisture. Bus supports and insulators should be cleaned with cloths moistened with an acceptable solvent.

B. Inspect all equipment for physical damage.

C. Torque test bolted connections, flexible shunts, or bus splice plates for tightness and check for adequate clearance to ground. Inspect all feeder circuit connections

and torque all connections to insure positive contact. Test for high resistance connections. Use infrared heat guns to test taped connections under load.

D. Check each control wire terminal to insure positive connection and that stranded wires are not broken or solid conductors weakened at the connection to the terminal. Repair or replace defective or damaged connections. Inspect insulation on control or feeder wiring for fraying and deterioration. Replace defective or damaged wiring.

E. Replace any burned out lights Use LED bulbs where possible.

F. Clean, service, and calibrate all customer owned panel instruments and meters.

3.02 PROTECTIVE RELAY

A. All protective relays shall be tested and calibrated in accordance with technical section 16574 attached.

3.03 DISCONNECT DEVICES

A. The minimum maintenance procedures listed below are required on all air break disconnect devices, power fuses, and any other disconnecting devices on all equipment included as part of this work.

B. Check line terminals for the correct torque values. Inspect contact making parts for signs of overheating, burns, or poor contacting. Perform necessary corrective action. Check for proper spring tension on spring contacts. Replace weak or broken springs. Check contact alignment. Adjust as required to maintain proper alignment. Check for consistency of operation and freedom of moving parts. Eliminate friction in operating portions of the device.

C. Check power fuses for positive contact in fuse holders. Check fuse clips for spring tension, corrosion, or oxidation. Perform corrective action indicated.

D. Inspect knife switches and blade type gang operated switches for signs of overheating, positive stop and over travel, and ease of operation. Clean, adjust, and lubricate as necessary wiping off surplus lubrication after switch has been operated several times. Check switches for high resistance contacts.

E. Clean all insulators and inspect for cracks and defects. Notify Engineer of all cracked or defective insulators.

3.04 AIR CIRCUIT BREAKERS

A. The maintenance procedures and tests listed below are required on all air circuit breakers included as a part of this work.

B. Prior to performing any maintenance work, make certain all control circuits are open and that the breaker has been completely withdrawn from the unit.

C. Perform "as found" insulation tests using a megger tester to give a value for future comparative indication of insulation change. These tests shall be made across open breaker contacts between each phase and each phase to ground with the breaker closed.

D. Remove and clean interphase barriers and all other insulating surfaces with clean dry air, a vacuum cleaner, or clean lint free cloth. Inspect for signs of corona, tracking, or thermal damage. Replace if defective.

E. Inspect the main and arcing contacts for pitting, corrosion, signs of overheating or burning. Clean and smooth as required. Contact surfaces can be smoothed with crocus cloth or draw filed. Care must to taken not to remove too much material that would shorten the contact life. Notify Engineer of badly pitted or burned contacts.

F. Check contact spring pressure and verify proper contact penetration depth in accordance with manufacturer's recommended tolerances. The main contacts may be lubricated as recommended by manufacturer. **Do not lubricate the arcing contacts.** Check the contact pressure of the disconnect arm hinge joint and adjust as required to tolerances recommended by manufacturer.

G. Inspect the arc chutes, barrier stack, blow out coil insulation and flash plates for breakage, erosion, dirt, moisture, or contamination. Remove dirt or contaminates from the barrier stack with a cloth, light sanding, or by scraping with the end of a file. Do not use a wire brush or emery cloth. Remove glaze and metal deposits from flash plates by sand blasting or sanding with a coarse grain paper. Blow out particles with clean, dry compressed air.

H. Small cracks or chips on ceramic parts may be ignored. Notify Engineer of ceramic parts that have major damage. A small amount of milky glass is normal. Replace barriers that are heavily glazed (milky white along the edges of the "V" slots).

I. Inspect blow out coils and core insulation for evidence of abrasion, heating, or mechanical damage. Replace if mechanically damaged, burned, or punctured. Inspect the circuit breaker mechanism and associated switches and hardware for loose hardware, broken parts, or excessive wear. Notify Engineer of broken or excessively worn parts. Adjust and tighten as necessary to insure proper operation of mechanism. Check all bearings and surfaces receiving wear and re-lubricate in accordance with manufacturer's instructions. Inspect and clean air puffer system. Check hoses for flexibility, kinking or collapse, and soundness to mating parts. Notify Engineer of defective hoses and connections. Check cylinders for cleanliness and freedom from deposits that might retard motion of the piston.

Check piston for free movement within the cylinder and that the seals are flexible and contact the walls of the cylinder. Manufacturer approved lubricant should be applied to the seals to keep the material pliable, reduce shrinkage, and to provide lubrication. Replace seal material if it is inflexible or does not contact the cylinder walls. Perform other corrective measures as necessary.

J. Check for mechanical freedom of disconnect arm movements by manually slowly closing the breaker. Follow manufacturer's procedure for mechanical closing. Check for correct contact alignment.

K. Perform "as left" insulation tests repeating the procedure used above.

L. If specifically requested herein, perform a dielectric test on all secondary and control circuits.

M. Inspect the primary disconnect contact finger assemblies for smoothness and cleanliness. Clean silvered surfaces with alcohol or a silver cleaner. Remove minor burrs by dressing. Do not use anything more abrasive than crocus cloth on the silvered contact surfaces. Where serious overheating is evident, notify Engineer.

N. Perform trip and close tests on breaker as necessary to verify correct operation in all operational modes.

O. Measure contact resistance.

# Section 16573
# Maintenance of Low and High Voltage Motors

PART I - GENERAL

The requirements of these Contract Documents, including the Bid, Project Requirements, General Conditions, Supplementary Conditions, and/or Division 1 - General Requirements, apply to this section except as modified herein.

1.01 DESCRIPTION

A. This technical section is a supplement to specification section 16570.

PART II - PRODUCTS

2.10 MATERIALS

A. Provide materials as specified in the plans.

PART III - EXECUTION

3.01 INSPECTION AND ROUTINE MAINTENANCE PROCEDURES

A. All motors included as part of this work shall be inspected to locate, if possible, any problems or conditions which could lead to equipment failure or emergency shutdown. This inspection shall include, but not be limited to, the items listed below as applicable to the type of motor being inspected.

B. Inspect all windings for general puffiness, swelling, lack of insulation firmness, or other symptoms of deterioration or degradation of the insulation.

C. Check for girth cracking or separation of the ground wall of form wound coils, with particular attention being paid to the areas immediately adjacent to the ends of the slots. Where considerable cracking is observed, remove the wedges at the ends of the slots and check for cracking just within the slots.

D. Inspect all coil and connection surfaces for abrasion or contamination. Note the type of contamination observed, such as carbon dust, oil, moisture, chemicals, abrasive or conducting substances.

E. Check the bracing structure of the windings for the correct torque, distortion, or mechanical damage.

F. Inspect the insulation for corroding effects of foreign substances imbedded or lodged against coil insulation surfaces.

G. Check all slot wedges, fillers, field coil washers, and banking for tightness or cracking.

H. Check for evidence of abnormal mechanical, electrical or thermal forces. These may be noticeable by distortion of windings or coils.

I. Inspect all damper bars for breakage or distortion, or evidence of abnormal thermal gradients between bars and connecting end ring. Particular attention should be paid to areas near the end ring and at end of the pole piece where such breaks are often difficult to observe. Low resistance measurements between bar and end ring by means of a "ducter" or similar instrument provides a means of detection.

J. Check for any loose damper bars and related burning of the tips of the pole piece laminations.

K. Check the condition and tightness of the end winding blocking, signs of movement of the retaining ring insulating liner, and any other looseness or signs of movement. Powdered insulation in air ducts can be evidence of coil movement. Red oxide at metallic joints can be evidence of movement of metal parts.

L. Check tightness of all lead connections and condition of lead insulation. Use proper torque value for tightness.

M. Inspect all bearings, oil ring shafts, and bores for excessive wear, eccentricity, uniformity, burrs, nicks, scratches, grooves, overall general condition, and conformance with manufacturer's recommended tolerances.

N. Clean all coil and connection surfaces with a vacuum cleaner, a blower, or with compressed air.

O. A report shall be prepared documenting the results of the inspection. This report shall include all findings and maintenance performed.

3.02 TESTING

A. A megger test shall be performed on all machines included as part of this work. Minimum acceptable value is 2 megohms.

3.03 LUBRICATION AND OIL SEALS

A. All oil, grease, and lubrication shall be removed from the machine and replaced with new lubrication of the type and quantity recommended by the manufacturer.

B. All oil seals shall be replaced with new seals that meet the manufacturer's specifications. Care should be taken to insure that the seals are the correct size for the installation and that proper installation practices are followed.

C. The bore shall be checked for adequate chamfer and all scratches, burrs, or sharp edges removed.

3.04 MINOR MAINTENANCE

A. Any minor maintenance item suggested by the inspection or testing procedures shall be performed on the equipment. This shall include all adjustments, alignments, and replacement of parts of a minor nature.

# Section 16574
# Relay Testing and Calibration

PART I - GENERAL

The requirements of these Contract Documents, including the Bid, Project Requirements, General Conditions, Supplementary Conditions, and/or Division 1 - General Requirements, apply to this section except as modified herein.

1.01 DESCRIPTION

A. This technical section is a supplement to specification section 16570.

B. Work Included:

1. General/Electro-Mechanical Relays
2. Non-Directional Induction Disk Relays
3. Directional Overcurrent Relays
4. Motor Overload Relays/Electro-Magnetic Type
5. Instantaneous Plunger Relays
6. Under voltage Relays
7. Transformer Differential Relays
8. Solid State Motor Protection Relays
9. Test Equipment

PART II - PRODUCTS

2.01 MATERIALS

A. Provide materials as required.

PART III - EXECUTION

3.01 GENERAL/ELECTRO-MECHANICAL RELAYS

A. Visually check all breaker relays to determine whether they are damaged or out of mechanical adjustment. Inspect induction disk relays for foreign materials between magnet poles.

B. Inspect contacts. Dirty or pitted contacts must be cleaned, dressed, or replaced. Adjust contacts for proper action, wipe, alignment, and pressure.

C. Check all relay wire connections, internal and external, to relay case for draw-out types.

D. Check continuity for all taps on all current and voltage coils.

E. Reference individual relay instruction bulletins and perform any additional recommended maintenance procedures.

3.02 NON-DIRECTIONAL INDUCTION DISK RELAYS-CURRENT & VOLTAGE TYPE

A. Relays with test jacks shall be tested and calibrated with the relay in the case.

B. The following tests shall be performed on each relay.

1. Determine that the relay contacts close when the time dial is set at zero.

2. Check pick-up value for time and/or instantaneous unit at tap values equal to final settings. Plus or minus 5 percent values are acceptable.

3. Set time dial at approximate settings as noted in "Settings Summary" provided by Engineer. Adjust time dial to achieve desired trip time at 3x and 6x pick-up as may be specified in settings summary.

4. If time dial setting required to achieve 3x pick-up setting deviates more than 10 percent from the approximate setting noted in "Settings Summary", notify Engineer.

5. Test for proper time and/or instantaneous target operation.

6. Set target current range tap at 0.2 or 2.0 amperes as noted on "Settings Summary".

7. Perform any additional calibration test and adjustments as may be required by manufacturer's individual relay instruction manuals.

3.03 DIRECTIONAL OVERCURRENT RELAYS

A. Test, set, and calibrate in accordance with outline above where applicable.

B. Apply voltage and currents of proper phase, polarity, and magnitude to relays per manufacturer's instruction bulletins.

C. Check for proper operation of directional units in addition to non-directional relay components.

3.04 MOTOR OVERLOAD RELAYS - ELECTRO-MAGNETIC TYPE

A. For motor overload relays of the damped plunger or induction disk type, test per manufacturer's instruction bulletin.

B. Test, set, and calibrate relay in accordance with "Settings Summary" provided by Engineer.

3.05 INSTANTANEOUS PLUNGER RELAYS (WESTINGHOUSE TYPE SV AND SC)

A. Perform all maintenance checks as per Section 3.01 and per manufacturer's recommendations.

B. Carefully disassemble the plunger and shaft assembly. Clean the plunger shaft and bearings with a cleaning solvent and a clean, lintless cloth. Do not use any lubricants on the plunger shaft or bearings when reassembling the relay.

C. After reassembly, check the relay for proper adjustment and operation. Verify that the relay operates within the manufacturer's recommended limits.

3.06 GENERAL ELECTRIC TYPE NSV UNDER VOLTAGE RELAY

A. Perform all maintenance checks as per Section 3.01 and per manufacturer's recommendations.

B. Verify correct operation of the relay at the setting required in the "Settings Summary". Adjust as required.

3.07 TRANSFORMER DIFFERENTIAL RELAYS (WESTINGHOUSE TYPE HU)

A. Perform all maintenance checks as per Section 3.01 and per manufacturer's recommendations.

B. Verify that the relay operates within its acceptable operating range using manufacturer's recommended testing procedure. Adjust and calibrate if necessary.

3.08 SOLID STATE MOTOR PROTECTION RELAYS

A. Perform all maintenance checks per manufacturer's recommendations.

B. Verify that the relay operates within its acceptable operating range using manufacturer's recommended testing procedures. Adjust and calibrate if necessary.

C. Relays with under voltage settings shall be adjusted to trip at 90% of motor nominal voltage. Current settings on relays shall be adjusted to protect the load (motor) per manufacturer’s recommendations unless otherwise recommended by the Engineer. All other settings shall be per the Engineer.

3.09 MOTOR OVERLOAD RELAYS - ELECTRO-MAGNETIC TYPE

A. For motor overload relays of the damped plunger or induction disk type, test per manufacturer's instruction bulletin.

B. Test, set, and calibrate relay in accordance with "Settings Summary" provided by Engineer.

3.10 TEST EQUIPMENT

A. Test equipment shall be Multi-Amp Model SR-51 or approved equal to provide a sinusoidal test current and voltage sufficiently free of distortion and/or harmonics to prevent miscalibration between test currents and actual fault currents.

# Section 16575
# Maintenance of Low Voltage Motor Control Centers

PART I - GENERAL

The requirements of these Contract Documents, including the Bid, Project Requirements, General Conditions, Supplementary Conditions, and/or Division 1 - General Requirements, apply to this section except as modified herein.

1.01 DESCRIPTION

A. This technical section is a supplement to specification section 16570.

B. This section is intended to specify labor and materials maintenance items with the exception of major replacement parts. For defective items requiring "notification of the Engineer", a written order will be issued by the Owner or Engineer for Contractor purchase of said parts in accordance with a "Parts Purchase Agreement" as stated in the Bidder's Bid.

C. The intent of the work specified herein will include all Contractor labor required to install replacement parts, regardless if parts are supplied by Owner or purchased by Contractor.

D. Reference technical specification section 16574, "Relay Testing and Calibration", and perform the relay work where applicable.

PART II - PRODUCTS

2.01 MATERIALS

A. Provide materials as specified in the plans.

PART III - EXECUTION

3.01 INSPECTION AND ROUTINE MAINTENANCE PROCEDURES

A. The minimum maintenance procedures as listed below are required on all motor control centers included as part of this work. **Verify that equipment is de-energized before commencing work.**

B. Remove dust and dirt from motor control center in general.

C. Wipe all main bus insulators and vertical bus barriers.

D. Pole surfaces of relays or armature coils shall be inspected and cleaned to reduce surface tension sticking which retards drop-out. **Check springs for deterioration due to corrosive gases.**

E. Inspect all electrical connections, power or control, for correct torque values. If any loose connections are discovered, tighten to manufacturer's recommended torque values.

F. Inspect all unit wiring for deterioration of insulation.

G. Remove draw out units, if there are any, and check stabs and unit wiring. Remove accumulated dust from horizontal barriers and stab area.

H. Inspect all contacts. Where contacts show excessive wear from arcing, replace contacts or dress carefully with a file, making sure the original contact shape is kept. Always replace contacts in pairs to maintain correct contact pressure. Inspect contact springs for damage or overheating.

I. Inspect meters and instruments and check settings and calibrations.

J. Unit door interlocks should be inspected for proper operation.

K. All indicating lamps should be inspected and replaced as required.

# Section 16576
# Maintenance of Substation Transformers

PART I - GENERAL

The requirements of these Contract Documents, including the Bid, Project Requirements, General Conditions, Supplementary Conditions, and/or Division 1 - General Requirements, apply to this section except as modified herein.

1.01 DESCRIPTION

A. This technical section is a supplement to specification section 16570.

B. The general maintenance procedures listed in Part III of this specification section shall be followed on all equipment included as part of this work. This includes liquid filled substation transformers.

C. This section is intended to specify a labor and materials maintenance item with the exception of major replacement parts. For defective items requiring "Notification of the Engineer", a written order will be issued by the Owner or Engineer for Contractor to purchase of said parts in accordance with General Conditions.

D. The intent of the work specified herein will include all Contractor labor required to install replacement parts regardless if parts are supplied by Owner or purchased by Contractor if applicable.

PART II - PRODUCTS

2.01 MATERIALS

A. Provide materials as applicable.

PART III - EXECUTION

3.01 LIQUID FILLED SUBSTATION TRANSFORMERS

A. The maintenance procedures and tests listed below are required on all liquid filled substation transformers included as a part of this work.

B. Visually inspect the transformer tank. Check radiators for leaks, rust, or damage that would restrict the flow of oil.

C. Check liquid level, liquid temperature, winding hot spot temperature and inspection of pressure relief devices.

D. Verify proper operation of any pressure and temperature gauges and alarms. Notify owner of any seal breaks and/or loss of nitrogen pressure above oil.

E. Check the bushing terminal temperatures with an infrared scanner. Inspect and clean bushings, clean and tighten connections.

F. Electrically check blowers, fans, and auxiliary oil cooling equipment under simulated operating conditions.

G. Check drain valves for leaks. Drain off and discard oil as required to remove water and condensate that has collected in the bottom of tank and drain lines.

H. Collect samples of oil for tests required. Use only clean dry bottles. To insure absolute dryness, containers should be heated in an oven for at least one hour at a temperature of 212° F (100° C). Upon removal from drying oven, sample bottles should be covered or corked and allowed to cool to ambient temperatures. Use immediately after cooling.

I. Perform tests on the oil for dielectric strength, chemical analysis, acidity, oxidation, sludge or carbon content, dissolved gas, interfacial tension, and color.

J. If oil dielectric properties drop below 22.5 kV, oil must be filtered or replaced. If oil is found to be in poor condition, an inspection should be made inside the transformer tank for evidence of arcing or burning.

K. If transformer is not already labeled for PCB content, test the oil for PCB's and label the transformer accordingly.

# Section 16580
# Maintenance of Automatic Transfer Switch
## (Oil Test Only for oil filled automatic transfer switches)

PART I - GENERAL

The requirements of these Contract Documents, including the Bid, Project Requirements, General Conditions, Supplementary Conditions, and/or Division 1 - General Requirements, apply to this section except as modified herein.

1.01 DESCRIPTION

A. This technical section is a supplement to specification section 16570.

B. The minimum maintenance procedures as outlined below are required on all automatic transfer switch units included as part of this work.

PART II - PRODUCTS

2.01 MATERIALS

A. Provide materials as applicable.

PART III - EXECUTION

3.01 GENERAL MAINTENANCE PROCEDURES

A. Inspect all equipment for physical damage.

B. Compare equipment nameplate information and connections with single line diagram and report any discrepancies.

C. Check line terminals for correct torque values. Inspect contact making parts for signs of overheating, burns, or poor contacting. Perform necessary corrective action. Check for proper spring tension on spring contacts. Replace weak or broken springs. Check contact alignment. Adjust as required to maintain proper alignment. Check for consistency of operation and freedom of moving parts. Eliminate friction in operating portions of the device.

D. Clean all insulators and inspect for cracks and defects. Clean and lubricate mechanical linkage as necessary wiping off surplus lubrication.

E. Check switch to insure positive interlock between normal and alternate sources.

F. Check tightness of all cable connections and bus joints. Use proper torque value for tightness.

G. Perform manual transfer operation.

H. Perform insulation resistance tests phase-to-phase and phase-to-ground with switch in both source positions if possible.

I. Calibrate voltage sensing and transfer time delay relays to their existing settings.

J. Perform automatic transfer if possible by simulating loss of normal power and returning to normal power.

K. Monitor and verify correct operation and timing if possible for:

1. Normal voltage sensing relays.
2. Time delay upon transfer.
3. Alternate voltage sensing relays.
4. Automatic transfer operation.
5. Interlocks and limit switch function.
6. Timing delay and retransfer upon normal power restoration.

3.02 OIL TEST (OIL SWITCH ONLY)

A. Check oil level in switch.

B. Check outside of switch for any evidence of leaking oil.

C. Check all connections for correct torque values on handle, oil seal, cable entrances and lids.

D. Collect samples of oil for tests required. Use only clean dry bottles. To insure absolute dryness, containers should be heated in an oven for at least one hour at a temperature of 212° F (100° C). Upon removal from drying oven, sample bottles should be covered or corked and allowed to cool to ambient temperatures. Use immediately after cooling.

E. Perform tests on the oil for dielectric strength, chemical analysis, acidity, oxidation, sludge or carbon content, dissolved gas, interfacial tension, and color.

F. If oil dielectric properties drop below 22.5 kV, oil must be filtered or replaced. If oil is found to be in poor condition, an inspection should be made inside the switch tank for evidence of arcing or burning.

G. If oil transfer switch is not already labeled for PCB content, test the oil for PCB's and label the oil transfer switch accordingly.

# Section 16581
# Maintenance of Low Voltage Power Circuit Breakers

PART I - GENERAL

The requirements of these Contract Documents, including the Bid, Project Requirements, General Conditions, Supplementary Conditions, and/or Division 1 - General Requirements, apply to this section except as modified herein.

1.01 DESCRIPTION

A. This technical section is a supplement to specification section 16570.

B. The general maintenance procedures listed in Part III of this specification section shall be followed on all equipment included as part of this work. This includes low voltage power circuit breakers.

C. This section is intended to specify a labor and materials maintenance item with the exception of major replacement parts. For defective items requiring "Notification of the Engineer", a written order will be issued by the Owner or Engineer for Contractor to purchase of said parts in accordance with General Conditions.

D. The intent of the work specified herein will include all Contractor labor required to install replacement parts regardless if parts are supplied by Owner or purchased by Contractor if applicable.

PART II - PRODUCTS

2.01 MATERIALS

A. Provide materials as applicable.

PART III - EXECUTION

3.01 LOW VOLTAGE POWER CIRCUIT BREAKERS

A. The maintenance procedures and tests listed below are required on all low voltage circuit breakers included as a part of this work.

B. Prior to performing any maintenance work, make certain all control circuits are open and that the breaker is disconnected from all electric power.

C. Check arc chutes for damage.

D. Check the condition of the contacts. See that they are aligned and that the contact surfaces bear with firm uniform pressure.

E. Check breaker linkage lubrication. Check all adjustments of the breaker linkage and contacts.

F. All bolts, nuts, washers, cotter pins, lock rings, and terminal connections should be in place and properly torqued.

G. Inspect the bushing supports, as the vibration due to the operation of the breaker may cause the bushings to move slightly and result in misalignment of contacts.

H. Perform a contact resistance test.

I. Perform an insulation resistance test at 1000 volts dc from pole-to-pole and from each pole-to-ground with breaker closed and across open contacts of each phase.

J. Determine minimum pickup current, long time delay, short time pickup, ground fault pickup, and instantaneous pickup by primary current injection.

K. Make adjustments for final settings in accordance with breaker setting sheet.

L. Activate auxiliary protective devices, such as ground fault or under voltage relays, to ensure operation of short trip devices. Check the operation of electrically operated breakers in their cubicle.

M. Check charging mechanism.

N. Check and adjust operating mechanism per manufacturer's recommendations.

O. Perform trip and close tests on breaker as necessary to verify correct operation in all operational modes.

# Section 16582
# Maintenance of Freon Type Transformers

PART I - GENERAL

The requirements of these Contract Documents, including the Bid, Project Requirements, General Conditions, Supplementary Conditions, and/or Division 1 - General Requirements, apply to this section except as modified herein.

1.01 DESCRIPTION

A. This technical section is a supplement to specification section 16570.

B. The general maintenance procedures listed in Part III of this specification section shall be followed on all equipment included as part of this work. This includes Freon filled transformers.

C. This section is intended to specify a labor and materials maintenance item with the exception of major replacement parts. For defective items requiring "Notification of the Engineer", a written order will be issued by the Owner or Engineer for Contractor purchase of said parts in accordance with a "Parts Purchase Agreement" as stated in the Bidder's Bid.

D. The intent of the work specified herein will include all Contractor labor required to install replacement parts regardless if parts are supplied by Owner or purchased by Contractor.

PART II - PRODUCTS

2.01 MATERIALS

A. Provide materials as specified in the plans.

PART III - EXECUTION

3.01 FREON FILLED SUBSTATION TRANSFORMERS

A. The maintenance procedures and tests listed below are required on all Freon filled substation transformers included as a part of this work.

B. Visually inspect the transformer tank. Check radiators for leaks, rust, or other damage. Check the transformer for leaks using a Freon leak detector.

C. Verify proper operation of any pressure, temperature, and liquid level gauges. Notify owner of any seal breaks, low or high temperatures, loss of pressure, and/or low liquid levels.

D. Inspect and clean bushings, clean and properly torque connections.

E. Electrically check fans and fan controls.

F. Contractor shall advise owner on what routine checks are required for Freon type transformers.

# Section 16583
# Infrared Scanning of Electrical Equipment

PART I - GENERAL

The requirements of these Contract Documents, including the Bid, Project Requirements, General Conditions, Supplementary Conditions, and/or Division 1 - General Requirements, apply to this section except as modified herein.

1.01 DESCRIPTION

A. This technical section is a supplement to specification section 16570.

B. The infrared scanning procedures as outlined below are required on all equipment as listed in the bid section. This equipment to be scanned includes but shall not be limited to switches, busway, open buses, switchgear, cables, cable and bus connections, circuit breakers, rotating equipment, and load tap changer or current carrying devices.

PART II - PRODUCTS

2.01 MATERIALS

A. Provide materials as required.

PART III - EXECUTION

3.01 TEST REPORTS

A. The test report shall include but not be limited to the following:

1. The location of any problem area or "hot spot".

2. Temperature rise between "hot spot" and normal or reference area.

3. Cause of heat rise.

4. Percent ampere loading, if known.

5. Time and date of scan.

6. List of each area scanned.

3.02 INFRARED SCANNING PROCEDURES

A. Inspect all equipment for physical, electrical, and mechanical condition.

B. Remove all necessary covers prior to scanning.

3.03 TEST PARAMETERS

A. The scanning equipment shall be able to detect a 1 degree C rise between the area scanned and a reference at 30 degrees C.

B. Scanning equipment shall be able to detect emitted radiation and convert detected radiation into a visual signal.

C. Infrared surveys should be performed during periods of maximum loading, if possible, but not less than ten percent (10%) of the rated load of the electrical equipment being inspected.

3.04 TEST RESULTS

A. Contractor shall investigate and report any deficiencies found in the equipment surveyed for temperature gradients of 2 degree C or greater. Notify Owner of any temperature gradients of 2 degree C or greater. Notify Owner and provide a photograph of any deficiencies found from the infrared survey.

# Section 16584
# Maintenance of Low Voltage Molded Case Circuit Breakers

PART I - GENERAL

The requirements of these Contract Documents, including the Bid, Project Requirements, General Conditions, Supplementary Conditions, and/or Division 1 - General Requirements, apply to this section except as modified herein.

1.01 DESCRIPTION

A. This technical section is a supplement to specification section 16570.

B. The general maintenance procedures listed in Part III of this specification section shall be followed on all equipment included as part of this work. This includes low voltage molded case thermal-magnetic circuit breakers.

C. This section is intended to specify a labor and materials maintenance item with the exception of major replacement parts. For defective items requiring "Notification of the Engineer", a written order will be issued by the Owner or Engineer for Contractor purchase of said parts in accordance with a "Parts Purchase Agreement" as stated in the Bidder's Bid.

D. The intent of the work specified herein will include all Contractor labor required to install replacement parts regardless if parts are supplied by Owner or purchased by Contractor.

PART II - PRODUCTS

2.01 MATERIALS

A. Provide materials as required.

PART III - EXECUTION

3.01 MOLDED CASE THERMAL-MAGNETIC CIRCUIT BREAKERS

A. The maintenance procedures and tests listed below are required on all low voltage molded case thermal-magnetic circuit breakers included as a part of this work.

B. Check the breaker face and adjacent dead front surfaces of the enclosure for excessive heating under normal operating conditions. Notify owner of any excessive heating of the molded case breakers.

C. Prior to performing any maintenance work, make certain all control circuits are open and that the breaker is disconnected from all electric power, both high voltage and operating voltage.

D. Check the external molded case on the breakers for any cracks or other defects. Notify owner of any defects in the molded case.

E. Check all visible electrical components for evidence of overheating by looking for discoloration of terminals or deterioration of molded material.

F. Clean the circuit breaker surfaces of any dust, dirt, grease or moisture. Blow out particles with clean, dry, low-pressure air. Do not blow the dirt into the recesses of the unit.

G. Operate the breaker "on" and "off" several times to exercise the breaker and ensure that mechanical linkages are free, and to verify correct operation in all operational modes.

H. Perform a contact resistance test.

I. Perform an insulation resistance test at 1000 volts dc from pole-to-pole and from each pole-to-ground with the breaker closed and across open contacts of each phase. This test is only to be performed on circuit breakers that can be removed or isolated. Notify owner of measured resistance values of less than 1,000,000 ohms.

J. Check the magnetic trip on the circuit breaker by setting the instantaneous trip to the lowest pick-up value and start the motor to verify the circuit breaker operates. After the test is completed, return the instantaneous trip setting to the final settings.

3.02 MOLDED CASE CIRCUIT BREAKERS WITH SOLID STATE TRIP

A. Perform all tests as described above in Section 3.01 in addition to the following test by secondary current injection.

1. Check the pick-up value for time and/or instantaneous unit at values equal to final settings, plus or minus 5% values are acceptable.

2. Perform any additional calibration test and adjustments as may be required by manufacturer's instruction manuals.